The NEW ZEALAND JOURNAL OF AGRICULTURE

Vol. 62 WELLINGTON, JUNE 16, 1941. No. 6

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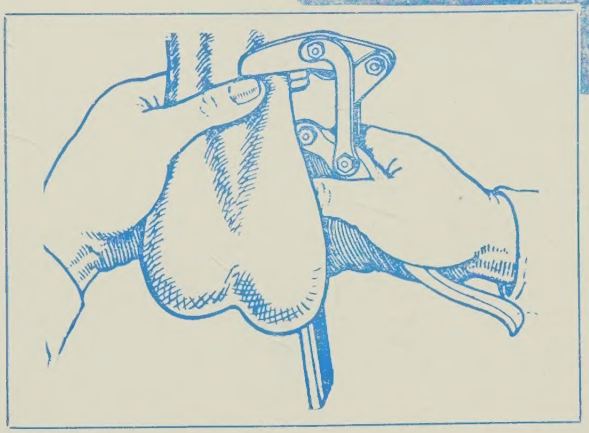

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Published by direction of the Hon. J. G. BARCLAY, Minister of Agriculture.

Vol. 62 WELLINGTON, JUNE 16, 1941. No. 6

AGRICULTURAL PRODUCTION PLAN FOR 1941-42 SEASON

By

HON. J. G. BARCLAY,
Minister of Agriculture.

AS the year 1941 has advanced, New Zealand's main primary industries have been faced with problems unprecedented in the history of the Dominion. Our agricultural economy, built upon the export of an expanding surplus of products to an open market, has been suddenly confronted during this year with the necessity for adjustment to a market drastically limited by the availability of suitable shipping.

For many weeks it was impossible to make any reliable estimate of the position for next season, as fresh developments were arising almost daily. Farmers naturally were anxious for a lead from the Government in order to plan their next season's production, but unfortunately at that stage it was not possible to publish a production programme without the real danger of some new advice from the British Government rendering it obsolete almost as soon as it was issued.

The production plan drawn up for last season was definitely based on an increased output of all products. The aim during the coming season is not increased production; rather is it a re-adjustment of production. The energies of the farming community are directed specifically towards the production of goods for which Britain has made special requests, or which are required to satisfy internal demand.

With regard to production for the export market, the limiting factors are the quantities of varioue products that Britain wants from us next year, and the quantities of each that she is likely to be able to ship. As many of these details are not yet fully known, it must be understood that the programme of production outlined below is subject to alteration as a result of contingencies that may arise in the future although at present unforeseen.

The production plan for the 1941-42 season can be conveniently presented under two headings — (a) General Objectives, and (b) Specific Objectives.

GENERAL OBJECTIVES.

(1) A swing towards wool production rather than meat production wherever this is practicable. In this connection, it may be advisable next season in many instances not to breed from ewes which verge on cull quality, but which, if run dry, will produce a good wool clip.

(2) The position as it affects fat lamb production is being closely watched, and the farming community will be advised of any important developments as they arise.

(3) A swing from sheep farming to dairying is inadvisable as a general principle.

It must be clearly understood that these general objectives are based simply on the information at present available and the most up-to-date estimate of future prospects. Farmers will be notified of any developments affecting the programme without unnecessary delay.

SPECIFIC OBJECTIVES.

1st Objective.—To grow what Great Britain asks of us.

For these commodities the aim is to achieve the greatest production possible under the processing facilities and productive resources that can be made available.

CHEESE. — The national objective is 160,000 tons, or 40,000 to 50,000 tons more than the current season's record production. The Dairy Division of the Department of Agriculture and the Dairy Board are charged with ensuring that this objective is achieved by the change-over of many dairy farmers from butter factory to cheese factory supply.

LINEN FLAX.—The aim is to grow at least 25,000 acres, an increase of 12,000 acres over this year's splendid figure.

WOOL.—The British Government has undertaken to purchase New Zealand's wool clip for the duration of the war and one year thereafter. Therefore, fullest possible production should be aimed at.

PEAS.—The position in regard to peas is uncertain in that, while an export demand exists, there is difficulty in arranging shipping. Farmers are recommended to arrange firm contracts with merchants before undertaking the growing of peas.

2nd Objective.—To grow what we can use in maintaining New Zealand's standard of living.

WHEAT.—The national objective is 300,000 acres, and because of the urgency of the matter area allocations have already been made to the District Councils of Primary Production concerned.

OATS.—An acreage approximately equal to the 1940-41 crop for threshing will suffice—about 61,000 acres.

MALTING BARLEY. — The aim is to increase the acreage in this crop commensurate with malting requirements. Contracts

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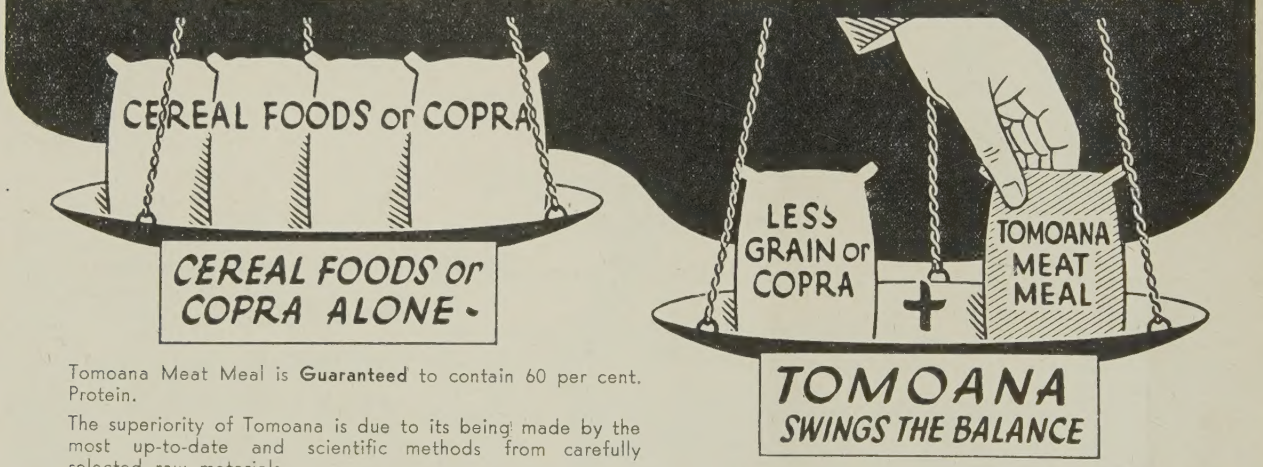

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SMALL SEEDS. — As far as practicable, the aim is to produce sufficient seeds of arable crops and vegetables to meet Dominion needs, together with a surplus available for export or as a carry-over in the case of seeds which do not rapidly decline in germination capacity. Special arrangements are being made for Government-approved lines of brassica and other small seeds to be grown under contract. Particular pains will be taken to secure the required areas of all these seeds.

MAIZE.—An area equal to the 1940-41 crop of 12,000 acres will be sufficient, to be grown essentially for poultry.

PORK AND BACON.—A local market is assured for approximately 200,000 carcasses of pork and 250,000 carcasses of bacon. In addition, there is a limited export outlet for porkers. At present there seems little chance of exporting baconers, and as the local market absorbs only a little less than half of last season's output, the production of baconers should be curtailed. The pig-keeping policy should be based on home-produced feeds, namely, dairy by-products and crops grown on the farm especially for pig feeding. Meals should be used for growing young pigs and meat-meal should be used with whey as in the past, but meals should not be used for fattening pigs or finishing them off. The object is to waste no feed and sacrifice no pigs. In these uncertain times it is difficult to give long-term advice, but as the position changes farmers will be kept well advised.

3rd Objective. — To maintain the current potentialities of primary production.

SUPPLEMENTARY FODDER. —The acreage of oats and barley for green feed, and of forage crops, such as turnips, rape, etc., should be maintained at the same level as in 1940-41. A particular objective is the provision of reserves of feed to meet abnormal demands that are likely to arise because of the probable need to spread killings over a longer period. This points to the advisability not only of giving all possible attention to arable feed crops, but also of conserving in the form of hay or silage the maximum amount of available surplus grass growth.

GRASS & CLOVER SEEDS.— The aim is to produce sufficient grass and clover seed to make the Dominion self-supporting, and also to provide a carry-over to be available to cater for our export trade. Particular attention should be given to certified seed in the case of perennial ryegrass, Italian ryegrass, cocksfoot, red clover and white clover because of the probable greater demand for certified seed.

GENERAL OBSERVATIONS.

(a) Rabbit control should be improved, or at least deterioration of the position should be avoided, especially in high-country sheep farming. Suitable rabbit control would have an early influence on wool production, which forms a feature of our first specific objective.

(b) Attention should be given to the raising of high-class young ewes and of quality stock generally—e.g., " marked " heifers and calves — so as eventually to strengthen our herds and flocks.

(c) The inroads of noxious weeds and of inferior invading plants generally should be checked.

CONSERVATION OF FERTILISERS.

As there will be a shortage of superphosphate next year, a rationing system will be introduced based on the following order of priorities:—

(1) The maintenance of crop production, for example, wheat, barley, maize, forage crops, etc.

(2) The establishment of new grass following a crop.

(3) Topdressing of established grassland.

Before deciding to topdress any particular field the farmer should consider seriously whether that field could be left unmanured for a season without suffering significant deterioration. No fertiliser should be wasted by applying it to land which does not need it. Except in special cases it would appear inadvisable for farmers to break in new land in view of the present position regarding markets and fertiliser supply.

FARMERS' LOANS EMERGENCY REGULATIONS.

Although the present trend is not towards increasing production generally, finance will still be made available to farmers under these Regulations, but only for projects that are in line with the above national production programmme. The change from butter to cheese supply is a case in point.

The finance committees of District Councils of Primary Production will continue to co-operate with officers of the State Advances Corporation in the administration of the Regulations.

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THE Director-General's PAGE

Rationing of Fertiliser Supplies

AS a result of war conditions, supplies of superphosphate and of other fertilisers are likely to be seriously affected from this month onwards. The cessation of importations into New Zealand of considerable quantities of basic slag and other fertilising material made heavy demands on manufacturing works in New Zealand to make up this deficiency. Our supplies of rock are drawn mainly from Nauru and Ocean Island, and enemy action last December made the position more difficult than it would otherwise have been. This, together with shortage of shipping, has largely been responsible for the serious outlook in the fertiliser industry. Recent discussions with the British Phosphate Commission indicate that our total supplies of rock for 1941-42 are likely to be less than two-thirds of the amount which was available during 1940-41.

Under these conditions, a responsibilty is placed on the Government to ensure in the first place that supplies are distributed on an equitable basis, and, secondly, that such supplies are used to their best possible advantage. It is unlikely that such a state of affairs would result if farmers have the opportunity of placing orders for such material as they require regardless of the purpose. As an alternative to this, some system of rationing will be necessary, and a scheme which will cause the least possible inconvenience to merchants and farmers is now being formulated.

As conditions are already sufficiently acute to necessitate priority of delivery being given to certain crops, arrangements have been made to ensure that wheat and other special crops are protected before orders are accepted for topdressing purposes. It is felt that in any rationing scheme to be developed it is essential that priority be given to the cereal and forage crops. The necessity for an increased acreage of wheat to supply local demand and also to produce flour for the manufacture of biscuits for export to the troops overseas will tend to make the total demand for fertiliser for wheat even greater than that experienced last year. It will readily be appreciated, also, that the restrictions on killings and the necessity for carrying additional stock on the farms will increase our requirements so far as winter feed is concerned. In addition, the linen flax crop has been extended in area and will account for a further small increase in the South Island demand for fertiliser.

In the present circumstances, therefore, it is of the utmost importance for farmers to conserve as far as possible supplies of fertiliser already available. Greater attention should be paid to the utilisation of farmyard manures whereever practicable, and stock and pasture management should be studied in an endeavour to conserve soil fertility.

To merchants and others interested an appeal is made for their closest cooperation in what will be for all concerned a somewhat difficult period.

Land Utilisation Officer

MR. J. E. BELL, Instructor in Agriculture, Auckland, has been appointed Land Utilisation Officer in succession to Mr. R. P. Connell, who has been promoted to Fields Superintendent, Christchurch.

A graduate of Lincoln Agricultural College, Mr. Bell was appointed Assistant Instructor in Agriculture, Auckland, in 1927, and was later placed in charge of agricultural instruction in the Pukekohe district. He was later transferred as senior Instructor in Agriculture in Auckland, a position he held until his recent appointment.

Mr. Bell is well known among the farmers in the Auckland Province. He has a wide knowledge of farm and market garden cropping and the utilisation of these crops for commercial and other purposes.

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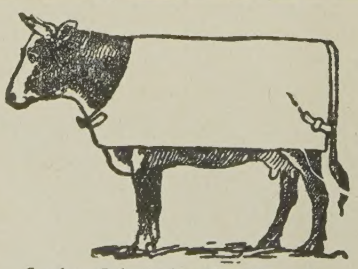

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Further Change-over to Cheesemaking

FOR the year ended March 31, 1941, the increase in cheese manufacture amounted to 21,696 tons, while creamery butter showed an increase of 9604 tons. As the increase in butter was made in spite of the large quantity of milk which was changed over to cheese, some idea of the increase due to weather conditions can be gathered.

For the coming season the British Government has indicated that it will require 160,000 tons of cheese. As allowance must be made for the possibility of less favourable weather conditions, it will be necessary to aim at an increase of 54,000 tons on last year's figures, and in view of the restrictions which have been placed on the shipment of butter, the producers of the Dominion are fortunate in having the facilities for making the necessary change-over.

A survey of the position has already been made, and indicates that this result can probably be achieved without the erection of new cheese factories, although it will be necessary to make some extensions to existing factories, particularly to the curing rooms. Where the milk supply is close to the factory, a twice daily delivery and a night shift to make up the evening's milk is the easiest method of achieving this increase. By this means, many problems such as the provision of motor-trucks, cans, factory equipment, etc., can be alleviated, and factory directors will be asked to put this system into operation wherever advantageous.

A change-over during the spring and autumn months will also be required in order to keep all the vats full for the longest possible period.

Arrangements are already in train for the reopening of a number of cheese factories, the equipment of former creameries for cheesemaking, and the change-over of present creameries to cheese-making, all working two shifts daily where practicable.

Complete lists of the amount of plant available, either new or used, have been compiled, and in order to make the best use of it a certain amount of control over its distribution has been asked for by manufacturers. Because of the short season in some districts and the impossibility of securing a supply of milk for two shifts daily, it is possible to make only 70 tons of cheese per year per vat. In others, an output of perhaps double that quantity may be secured.

It may be pointed out that the quantity of cheese made per vat will be influenced by the fat-content of the milk placed in it, as the yield of cheese per lb. of milk—and consequently per vat—will be greater in the high testing districts than in the low testing districts. The disadvantage of high fat-content milk for cheesemaking under normal conditions may be said to have become an advantage under present conditions, when shipping space will more readily be made available for cheese than for butter.

While the Government is prepared to consider favourably the provision of finance for the cost of equipment and extensions to existing cheese factories or for alterations to creameries to provide for cheesemaking in cases where the dairy company concerned cannot obtain the necessary accommodation from its bank, it does not propose to encourage the erection of new permanent units.

On the other hand, any arrangements which are made regarding repayment of Government loans for this purpose will apply to money spent by a dairy company from its own resources provided the expenditure was first approved by the Dairy Division. The proposals for repayment of these loans have not yet been finalised, but the intention is that a certain amount will be allowed annually for depreciation of buildings and plant purchased with the Government loan moneys, and at the end of the period when such plant and buildings are proved to be redundant, they will be written off or reduced to their assessed value at that time.

It is proposed once again to make a grant of up to a maximum of £20 to cover the cost to a supplier changing over.

It will be realised, therefore, that the wholehearted co-operation of the industry will be required if the quantity of cheese asked for is to be attained.

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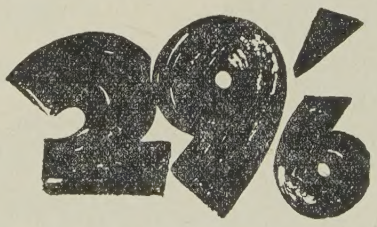
The latest Featherlite has a slightly wider brim—the tendency is to wider brims. The medium weight, noted for its smart, streamline appearance, is obtainable in brim widths of 2 to 2¼in. The selection of shapes in both weights is more extensive than in pre-war days. There are brim and band widths to suit all tastes. The new Viceroy shades are in Blues, Browns, Greys, and Greens to blend and contrast with the new season's more colourful clothes.



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Linen Flax

Basis Of Contract For Next Season's Crop

AT the request of the British Government, New Zealand farmers are being asked to sow a minimum of 25,000 acres of linen flax during the coming season to assist in the war effort. Last season an appeal was made to grow 14,000 acres, and, thanks to the magnificent response of the farming community, more than 13,000 acres were actually sown, thus enabling the 10 factories which were built by the Government in various districts of the South Island to function to full capacity.

By

R. B. TENNENT,

Director of the Fields Division, Wellington.

THE new programme of 25,000 acres will call for the erection of a further six factories in the South Island and additions to five of the existing factories.

Experiments are also being conducted in certain districts of the North Island to ascertain the extent to which linen flax can be grown, and if the experiments are successful consideration will be given next year to the establishment of factories in the districts concerned.

Before undertaking the growing of linen flax for the 1941-42 season farmers will naturally want to know something about the contract price being offered for the crop. A brief outline is therefore given of the contract which farmers will be asked to sign.

Summary of Contract

(1) All contract areas must be approved by an officer of the Department of Agriculture.

(2) No minimum guarantee will be given this year, but prices and bonuses will be higher.

(3) Seed for sowing will be provided ex-factory or railway siding nearest to grower at the rate of 25s. per cwt sacks in. This cost will be a first charge against the farmer's account, but will be written off in the event of crop failure due to causes other than negligence on the part of the grower.

(4) Crops will be inspected by a representative of the Linen Flax Organisation before harvesting to determine their suitability for processing into linen flax fibre, this determination to be based on length of fibre (minimum equals 20in) freedom from weeds and general quality. The inspection will be carried out in conjunction with the local Instructor in Agriculture, who will act as advisor to the farmer when the crop value is assessed.

(5) Where a crop is rejected for fibre purposes the grower may harvest it for seed, which will be paid for at the rate of £20 per ton on a machine dressed weight, the farmer to deliver such seed on trucks nearest station or to the factory.

(6) The Crown undertakes to arrange for the pulling of those areas accepted for fibre production which are in a fit state to harvest by pulling machine, either by the employment of contractors or by the supply of pulling machines to be operated by farmers. In either case binder twine will be provided by the farmer. If the full pulling service is provided, the farmer's account will be debited at the rate of 30s per acre of crop pulled, while if a farmer undertakes to arrange the pulling of 125 acres a puller will be hired out to him and serviced with spare parts at the rate of 10s. per acre. In the event of pulling being undertaken by the Linen Flax Section where less than 95 per cent. of the crop is pulled due to bad operation of the puller and not through the inability of the machine to deal with the crop on account of the bad conditions of the crop, an assessment will be made

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on that portion of the crop left unpulled and the farmer will be credited with that amount.

(7) Delivery of undeseeded linen flax straw will be made by the grower to the linen flax factory, either out of stack on the farm or alternatively off lorry or other transport at the factory, subject to mutual agreement between the farmer and the factory manager. In the event of the farmer being unable to provide labour for loading from the stack to the lorry, the factory will provide such labour, which will be a charge against the farmer.

(8) Undeseeded linen flax straw of processable quality will be purchased at the minimum rate of £6 per ton. In addition, bonuses to the above rate will be determined at field inspection to a maximum of:—

(a) For straw quality, fibre content, and freedom from weeds: 30s per ton.

(b) For length of fibre, 2s per inch (up to 30in): 20s per ton.

(c) For seed yield: 10s per ton of straw.

While a further bonus of up to 30s per ton will be declared on delivery for material free from weathering, well handled and otherwise in good condition.

(9) Produce of badly impaired quality caused by careless handling and stacking may be degraded below the valuation determined at field inspection.

(10) An estimate of the weight of straw stacked on the farm will be made as soon as possible after stacking, and the grower will then be paid an amount equivalent to 50 per cent. of the total value of the estimated weight of straw in stack, based on the valuation determined at field inspection. The balance, together with any bonus due for delivery in good condition, will be paid following delivery of crop.

(11) Full payment for straw delivered to the factory will be made following delivery of the crop.

(12) To compensate the grower for storage, risk of damage, and delay in payment, there will be added to all payments due to be made on or after March 1 in Canterbury and Marlborough, and on or after April 1 in Otago and Southland, or on the first day of the month after stacking (whichever is the later), an increment of 2½ per cent. per month or part thereof of the initial amount due.

(13) In event of loss of or damage to straw after stacking, but before delivery, such loss or damage as a result of faulty stacking, flood, or fire, will be the responsibility of the grower except in so far as any payment may have been made to the grower in the form of an advance payment before delivery (see Clause 8).

(14) Provision in the contract will be made for farmers to give authority for payment to a mercantile firm or Government Department.

Appeal to Farmers

In conclusion, it is hoped that as many farmers as possible will again this season undertake the growing of linen flax, which has in most cases resulted in a first-class return to farmers situated in districts where soil and climatic conditions are conducive to good crops. The bonuses this year are much higher than those obtaining in the last contract; consequently, farmers who grow good crops of high quality can expect returns up to £15, or even more, per acre.

Farmers are strongly urged to respond to this patriotic appeal and in this way to assist Great Britain to secure one of her essential wartime requirements. Should further information in regard to suitable areas or other conditions be desired, farmers are advised to consult their merchant or nearest Instructor in Agriculture.

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Bearing Trouble In Ewes

Conditions prevailing this autumn are suggestive of possible outbreaks of bearing trouble in ewes in the spring, and sheep farmers are therefore urged to undertake certain simple preventive measures.

Failing a long-term plan of prevention, there are commonsense measures calculated to overcome the cause of the trouble which have been used for many years by practical sheep farmers.

Fig. 1.—A typical case of bearing trouble.

By

A. D. M. G. LAING,
Veterinarian, Hastings.

IN a description of country life as it was two thousand years ago, a famous Latin poet says, "Naturam expellas furca, tamen usque recurret." This may be translated, "If you expel Mother Nature with a pitchfork, she comes back again more strongly than ever." In other words, even twenty centuries ago it was recognised that if it was desired for purposes of human convenience and profit to overcome the crude checks and difficulties of natural conditions, it was wise to watch out for these "coming back" in various ways.

In this way, bearing trouble and its "opposite number," ante-partum paralysis of ewes, both occur in sheep living and breeding under conditions much removed from those under which sheep would exist if running wild. It is, therefore, necessary for farmers to be constantly on the watch for little "come-backs" on the part of Nature, and that is one of the things which makes farming one of the most interesting (and worrying) of occupations. It is the object of this article to suggest that bearing trouble is a good example of what has been quoted above, and that in this instance, at least, fairly simple measures will overcome the difficulty.

Bearing trouble of in-lamb ewes, popularly known as "putting out the bearings," "red bag," and prolapse or eversion of the vagina, can cause substantial losses to the sheep farmer in certain seasons. While occasional cases happen every year, outbreaks occur only after a mild winter following an autumn when feed has been plentiful and the pastures rank in growth—that is to say, when the ewes are in too high condition. In 1908 and in 1938, for example, in Hawke's Bay, the rainfall from January onwards was far in excess of the average and the seasons mild, with resultant heavy pasture growth. In both these years the incidence of bearing trouble was very much higher than usual. In 1938, the percentage was as high as 11 per cent. on some places, with an average of about 4 per cent. In about half the cases, the affected ewes died.

Conditions prevailing this autumn are suggestive of possible trouble with "bearings" in the spring, sufficiently so, at any rate, to make it worth while for sheep farmers to consider the advisability of certain simple preventive measures, which will be discussed in the course of this article.

Symptoms of Bearing Trouble

While cases occur in two-tooth sheep, the disease is mainly one affecting 4-tooth, 6-tooth, and older ewes in high condition, that is, fat. In 90 per cent. of cases, there are twin lambs in the womb, and, if not, the single lamb is over average size.

Symptoms occur about seven to fourteen days before the ewe is due to lamb. The protrusion of the membrane lining the vaginal passage from the vaginal orifice in the form of a large reddish swelling is the first sign noticed. (See Fig. 1).

The swelling increases with time, both from straining on the part of the ewe and from the accumulation of blood in the extruded part. If it is not treated, inflammation sets in, the ewe cannot urinate, and death ensuses. The "bearing" may occasionally return of its own accord, especially in those cases occurring in dry ewes. If the ewe dies and is opened up for examination, the bladder will be found distended with urine, and, as a rule, the liver is pale and greasy. There is usually much abdominal fat, and in 90 per cent. of the cases, twin lambs are present.

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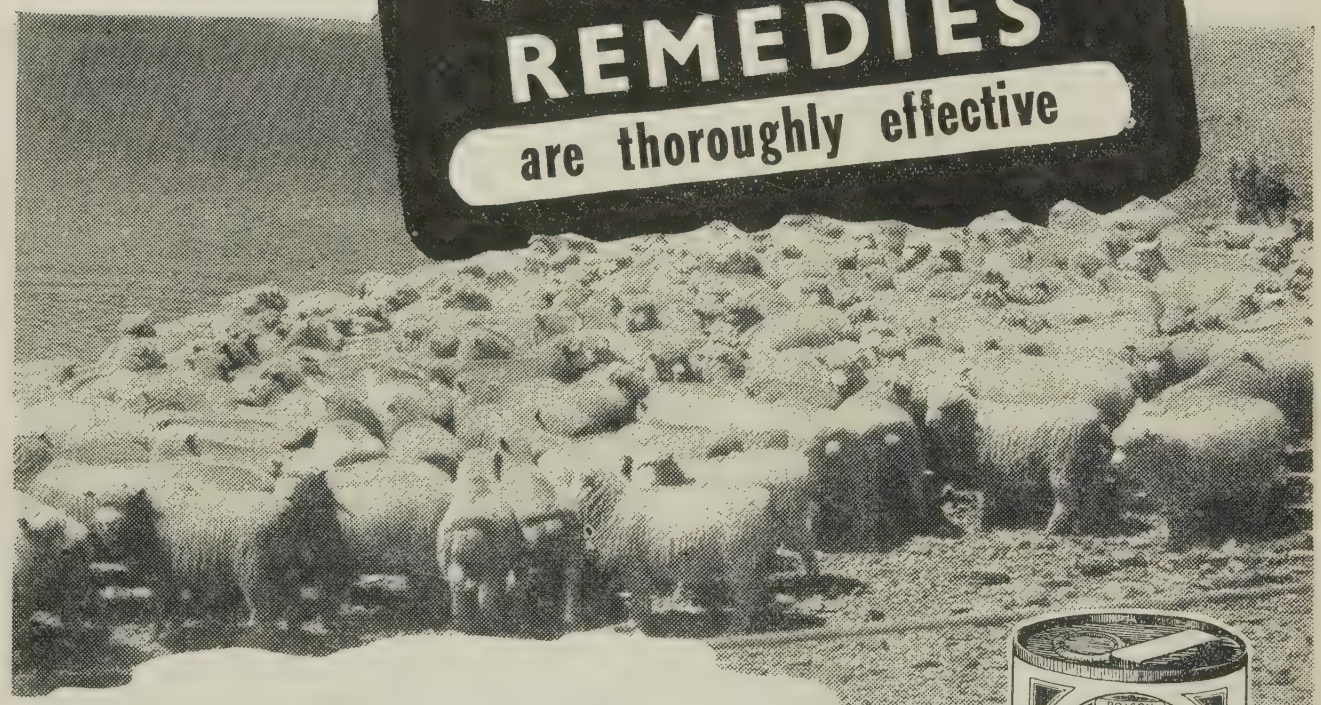

Foot-rot is a disease which has become exceedingly common and may cause considerable financial loss. On farms where it has previously occured preventive measures become a necessity. Cooper's Foot-Rot Liquid per medium of the footbath supplies an efficient method of controlling the disease both before and after it is known to exist on a property. Mixes instantly with cold water and does not make the hoof brittle. For individual treatment of affected sheep a hand-dressing of Cooper's Foot-Rot Ointment is invaluable.

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The Cause

Bearing trouble is due to incorrect nutrition. The chain of circumstances leading up to it are as follows:—

(1) The ewe has been carrying too much condition in the autumn, and has remained so through the winter.

(2) The flock is rarely disturbed and feed is plentiful, but is inclined to be rank, that is, bulky.

(3) The ewe lies down to ruminate for long periods, during which the bladder fills up. The conditions under which this occurs are conducive to laziness on the part of the sheep.

(4) She gets up to urinate only when the bladder is full. It may be noted how invariably such ewes immediately make water when disturbed.

(5) In all animals, when the bladder is excessively full, a nervous contraction of the neck is liable to take place, preventing the act of urination for a few seconds.

(6) The ewe strains to bring about urination. Straining consists of a contraction of the muscles lining the abdomen, etc.

(7) This contraction or straining forces the organs back into the pelvis.

(8) The paunch is full, feeding being plentiful and bulky, and the womb is very large, usually containing two lambs. Much abdominal fat is present. All these factors increase the pressure mentioned below.

(9) See Fig. 2. The neck of the bladder is pressed against the aitch bone, it being so situated by the abdominal organs coming backwards from the straining.

(10) Should the ewe attempt to make water when lying down, the tendency to close the bladder is still greater.

(11) The ewe is now in a "vicious circle." The more she strains to urinate, the more effectively do the abdominal organs pressing back close the neck of the bladder, and the longer time the neck of the bladder is closed, the greater is the straining to make water.

(12) The ewe is fat, in soft condition, her tissues lack "tone," and eventually the vaginal lining is forced to the exterior—"bearing" out.

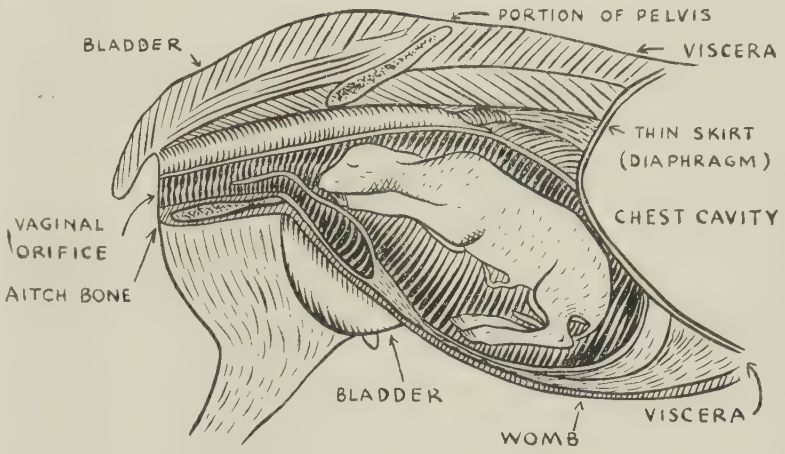

Fig. 2.—**A diagram of a pregnant ewe subject to bearing trouble. Note the full bladder, its proximity to the aitch bone, and the womb above.**

Treatment

If the ewe can be treated before the extruded membrane has become congested, injured, or filthy, a good percentage of cures can be obtained. The not uncommon cases of relapse after lambing should be watched for and treated on the same lines.

The part should be greatly cleansed. Condy's crystals at a strength of a half-teaspoonful to a gallon of water, as nearly at blood-heat as is possible in the circumstances, are good, but the solution must be fresh to be of value. Strong or irritant antiseptics must be avoided at all costs, as they will cause straining and a recurrence of the trouble.

Having ensured that the hand and forearm are clean, they should be smeared with carbolised oil and the vaginal membrane returned into place, keeping it in position with the hand until it is warm and the blood has begun to circulate. In this connection and in regard to the handling of lambing ewes, it is important that the nails should be kept short, even, and as free from dirt as possible. When the external opening of the bladder is clear, the urine will come away. Most farmers use this as a means of cleansing the "bearing." Normal urine is quite aseptic, is non-irritant to vaginal tissues, and has the advantage of being at blood-heat.

If desired, the administration by the mouth of one drachm of chloral hydrate

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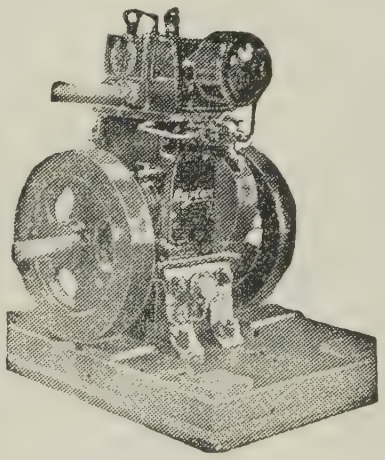

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will help to prevent the ewe straining and forcing the "bearing" out again. This can be given most easily in a small-sized gelatin capsule. A dessertspoonful of weak bluestone solution (2½ per cent.) given with, or immediately before, will ensure the closing of the oesophageal groove and the passing of the capsule to the true stomach. Raising the hindquarters when returning the bearing will materially assist the operation.

When return is completed, two or three locks of wool may be tied across the vulva to retain the bearing in place. Leather or rubber patches cut to a size to cover the vagina and held by light cords tied to the wool on the flanks are also used. Such rubber patches can be made from an old inner tyre tube, and they have the advantage of cleanliness and elasticity. Stitching, safety pins, and other materials to pin the lip of the vagina together are best reserved for chronic cases of relapse of the trouble.

On no account should materials such as bran, short wooden sticks, etc., be placed in the vagina to retain the bearing mechanically. Such remedies may seriously injure the ewe, and there is naturally a tendency on the ewe's part to endeavour to get rid of a foreign body so placed—that is, further straining is induced. Injuries to the passage may result in complications at lambing.

Prevention

The ideal is that ewes should be in good condition, but not fat, at tupping time. They should then have sufficient feed to keep them rising slowly in condition throughout the period of pregnancy, **allowance being made for the disproportionately large requirements of the foetus during the last month before lambing.** When this can be done, outbreaks either of bearing trouble or ante-partum paralysis (sleepy sickness) simply will not occur.

To ensure being able to bring about this ideal, however, a farmer must have ample reserves of suitable supplementary feed (hay, ensilage, etc.) available for use **at the right time.** That is to say, the farmer must be prepared in that way to circumvent climatic vagaries.

The above recommendations are what may be termed long-term prevention and, when practised, it will prove entirely effective. As regards more immediate preventive measures—that is, on a farm where the pasture conditions and the state of the ewe flock appear to render an outbreak of bearing trouble likely—measures suggested are those based on common sense calculated to overcome the cause of the trouble which have been used for many years by practical sheep farmers. As the causes are laziness and soft condition, resulting in a lack of tone in the body tissues—see (12) above—and excessive fat, prevention is by mild exercise. The ewes should be mustered **quietly** once daily and given a change of pasture and gentle exercise for one or two hours. Apart from this the ewes can be made to get up and walk quietly a few yards every morning and evening. It is scarcely necessary to emphasise to the sheepowner the great desirability for quietness and gentleness in carrying out these operations.

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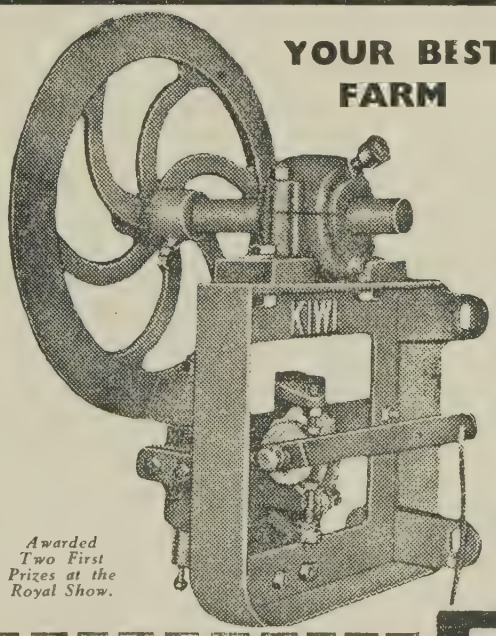

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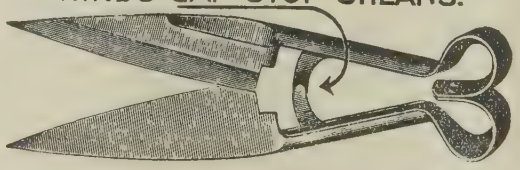

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CUT THESE LOSSES

Farmers Are Urged To Avoid Sending Pregnant Ewes For Slaughter At Abattoirs

By the LIVESTOCK DIVISION, Department of Agriculture

IN previous years from June onwards the attention of the Department has been drawn to the number of fat ewes which are found on slaughter to be well advanced in pregnancy. This matter is of direct concern from several angles. In the first place, it would appear uneconomic for a farmer to send forward for sale ewes advanced in pregnancy. It may be argued that an owner is not in a position during the early stages of pregnancy to say whether the animal is pregnant or not, but during this doubtful stage, not much harm will be done, as the dressed carcass of such an animal is not unfit for human consumption, and no loss is incurred by the agents or purchasers. During the later weeks of pregnancy, however, it should be quite possible for an owner to examine each ewe by palpation before sending it forward to the saleyards. It is not possible to do this work in a crowded saleyard; nor should it be necessary if due care was taken before the line left the farm.

If an examination on the farm is not carried out, especially of ewes that would be lambing late in the season, the result is that quite a number of ewes in varying stages of pregnancy are sent forward to sales and in due course arrive at the abattoirs for slaughter. In past seasons actual instances have been reported of ewes so far advanced in pregnancy that lambing has taken place in the yards. It may be difficult to give a guarantee that all fat ewes sent forward for sale are empty, but much loss and inconvenience would be avoided by a careful examination of each ewe before it leaves the farm.

The slaughter of ewes advanced in pregnancy is most objectionable from several angles, and should be controlled as far as is reasonably possible. It may not be desired to keep certain late lambing ewes on the farm, or the high price obtainable for fat ewes may be an incentive to send pregnant fat ewes to the sale. None of these excuses should be accepted by agents handling fat stock, as it behoves everyone to endeavour to stop an undesirable trade of this nature.

From the abattoir and meat inspection angle the condemnation of carcasses from ewes advanced in pregnancy or from ewes recently lambed is the general rule. Consequently, a butcher trading in a line of ewes and having purchased them under the description of fat empty ewes is greatly inconvenienced and suffers considerable monetary loss when one or more animals in the line are condemned. Under the Meat Act there is no compensation payable on animals condemned for advanced pregnancy, so that very considerable loss may be suffered by master butchers in a single season.

As the conditions referred to should be obvious to farmers and the practice is capable of prevention by a careful examination of all fat ewes on the farm, it appears rational to expect all owners to assist in preventing such loss in the industry.

Radio Broadcasts

RADIO broadcasts to farmers will be given from 1YA Auckland at 7.15 p.m. on the following dates:—

June 23.—Address to members of the Young Farmers' Clubs: Mr. D. S. Ross, President of the Auckland Young Farmers' Clubs Council.

June 30.—"Herd Improvement Work": Mr. R. W. Taylor, Consulting Officer, N.Z. Dairy Board.

July 7.—"Grassing Consolidated Sand Country," Mr. E. H. Arnold, Instructor in Agriculture, Department of Agriculture, Dargaville.

July 14.—"The Reclamation and Grassing of Tidal Flats": Mr. E. B. Glanville, Instructor in Agriculture, Department of Agriculture, Whangarei.

July 21.—"New Zealand Grapefruit": Mr. A. M. W. Greig, Citriculturist, Department of Agriculture, Auckland.

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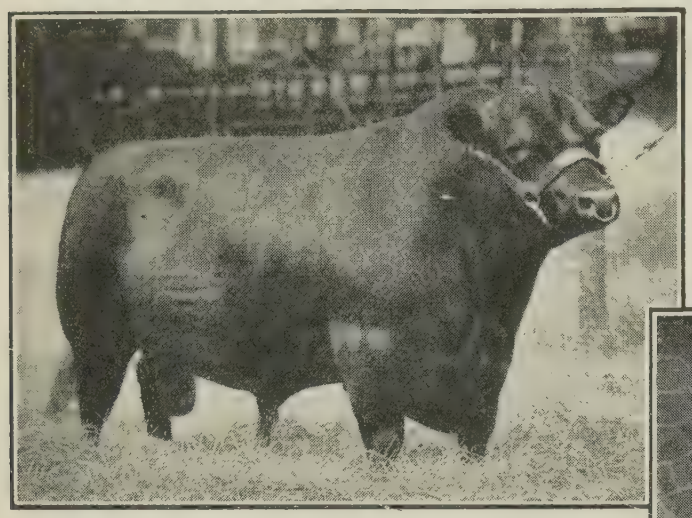

Above: BARMAR QUALITY (Imp.), the late herd sire of BEACHLEA DOWNS STUD. Before he left America he was Junior International Champion at Chicago.

Right: BEACHLEA D57, the chief sire of the Flock. He is a son of SANDRINGHAM 117/34 (Imp.), bred by H.M. the King. He won two gold medals as a shearling, and has won many championships.

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IT'S WINTER!

Now Is The Time To Prepare Your Ensilage Pits

Fig. 1.—A pit situated on high ground with good roadways for carting out. The stacker has been used for delivering the green material into the pit and on to the top as the height increased above ground level.
[*C. R. Taylor, photo.*

By
C. S. DALGLIESH,
Fields Instructor, Rotorua.

ALTHOUGH the winter is in some respects a season of relatively light labour needs on farms generally, it is in other respects a season in which many farmers may with great profit keep themselves very busy on tasks of great importance and far-reaching influence. There are countless jobs which can be done in the winter that will facilitate seasonal work in busy periods of the year, and the making of ensilage pits and trenches is just one of the many operations that can be attended to with advantage, particularly as it is work which, as a rule, is better done well ahead of the time when ensilage-making operations are being carried out in order to allow the thorough settling down of the earth disturbed in the construction work.

Low Cost

There are many methods of making silage—silos, stacks, earth pits, trench pits, hillside stacks—and after the farmer has decided on the method best suited to his requirements, the selection of a site and the making of silos or pits is work which can be done during the winter months and which will enable him to carry out his harvesting work without any undue delay. One advantage of the earth pit, trench pit, and hillside stack is the small outlay in expenditure. They are admirably suited to the needs of the small farmer, and the pit or trench should be adopted where possible, as they minimise the amount of waste and are economical in labour and equipment requirements. With the present scarcity of farm labour and the difficulty in securing material, combined with high costs it is very important for the farmer to adopt methods of farming practice which will reduce labour and material costs to a minimum.

The stack system of ensilage-making has definite merits, and should be adopted if circumstances do not allow the use of the pit or trench.

Pits have two distinct disadvantages:—(1) Once made, they can be utilised

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Fig. 2.—No stacker was used, the harvested crop being brought to the pit by the tumbler sweep. All the work was done by the workers shown in the photo. (Mr. McKenzie Peffer's farm, Putaruru.) This pit has now been deepened to 17 feet, and there is now no need to build material above ground level. The pit is 17 feet deep at the back, 16 feet wide, and 28 feet long.

only for crops within easy haulage distance in their specific areas, while stacks can be built in any field each year as required; and (2) the ground is very liable to be cut up to a greater extent when feeding out than from stacks, which allow the cured material to be loaded from any angle.

Location of Pit

The water level and contour of the country have an important bearing on the utilisation of the pit or trench system, which is therefore more generally used in some districts than others. In selecting a site, it is necessary to ensure, firstly, that it is conveniently situated both for harvesting and feeding out. This usually means that a pit should not be placed at one corner of a large field. Further, the pit should be situated on a bank or terrace so that the green material is pitched in from the top and the cured material loaded out from the lower side of the pit. This saves labour, but requires a good roadway for carting out.

Figs. 1 and 2 illustrate pits situated on high ground with good roadways for carting out. In Fig. 1 the stacker is being used for delivering the green material into the pit and on to the top as the height increases above ground level. In Fig. 2 no stacker was used; the green material was brought to the pit by the tumbler sweep, and all the work was done by the workers shown in the photograph. This pit, which is on Mr. McKenzie Peffer's farm, Putaruru, has since been deepened to 17 feet, and there is now no need to build material above ground level. The pit is 17 feet deep at the back, 16 feet wide, and 28 feet long.

Pits or trenches should not be subject to invasion by water either because the water level of the locality is near the surface or because there is seepage from a higher level. Pits or trenches calling for special drainage measures have nothing to recommend them, and should be avoided.

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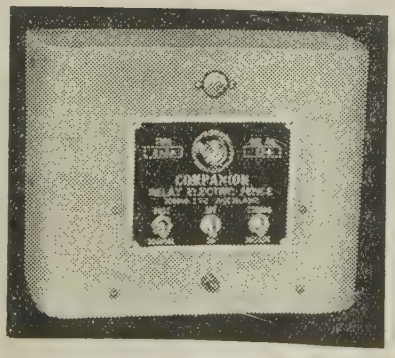

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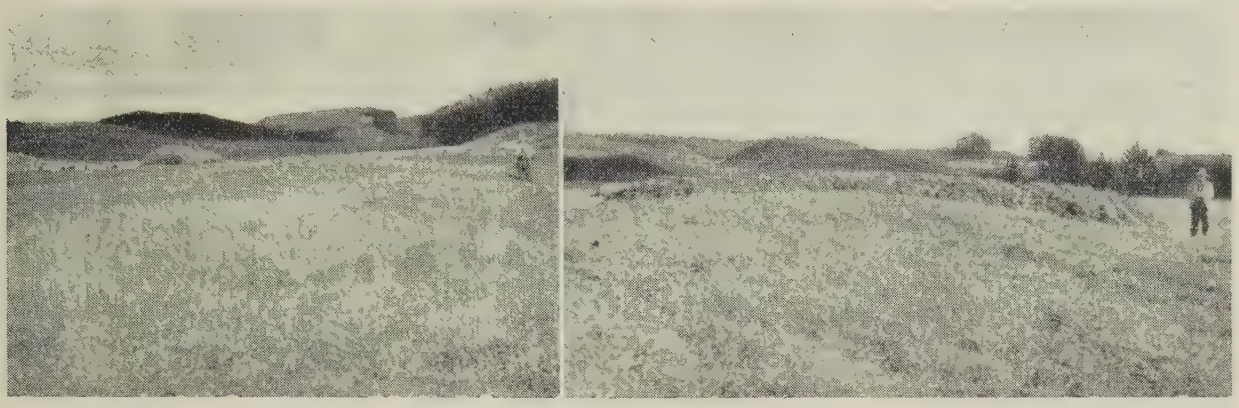

Fig. 3.—A low hillock provides a suitable site for a trench. Being higher than ground level, good drainage is attained, and the loading of the silage when feeding out is made easier. *Fig. 4.*—A completed trench on a slight elevation, as in Fig. 3.

soils, there is little trouble with roadways being badly cut up when feeding out during wet weather, but on soils of stiff clay which take some time to dry after heavy rains it is sometimes necessary to make a hard surface roadway.

Long Filling Period

Excellent silage can be made by the pit or trench system over a longer period than by the stack system, and high class results have been obtained when the period from start to finish has extended to one month, although ten days to two weeks is usually ample under small farm conditions. This means a great deal to the small farmer who cannot secure sufficient labour and has not the stacker to facilitate the building of a stack reasonably quickly. This was strongly emphasised in the Farmers' Field Competitions in the Taranaki district in 1932, as the following extract from the "Journal of Agriculture," October, 1932, shows:—

"As an indication of the slowness with which a pit may be filled, provided the raw material is right, and may yet come out ideal silage, the dates on which Mr. Gudopp worked on his pit may be cited. A start was made on November 16, and filling continued on the 18th, 19th, 21st, 23rd, 24th, 25th, 27th, 28th, and 30th of that month, and again on the 2nd, 3rd, 5th, 6th, 7th, 10th, 12th, 14th, 15th, and 16th December, just a little being added on most occasions. Soil was put on on December 17 and 18. This was one month from the starting date. In the

Fig. 5.—A view of a trench pit during feeding out in the winter on Mr. L. A. Newall's farm, Tokoroa. The loading of the silage is made easy. The trench is 35 feet long, 15 feet wide, and 4 feet deep. This trench has been in use for seven years, and 160 to 200 tons of silage are made each year by the use of the tumbler sweep and trench pit, extra labour being engaged during the harvest.

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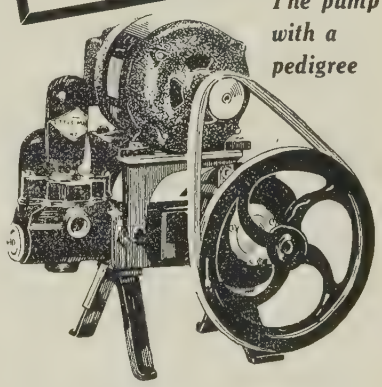

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ensilage competition this pit tied for first place in an entry of 46.

It has been estimated that the loss in a well-built stack is 4 to 5 per cent., and in a badly built stack it may be 20 per cent. In a properly constructed pit or trench which has been well filled the loss need not exceed 1 per cent., but may range up to 10 per cent. in badly filled pits.

The assumption that a satisfactory pit or trench demands a terrace or bank of considerable height is quite unfounded, as efficient results have been obtained in trenches 4 ft. to 5 ft. deep.

Use of Trenches

Because the possibility of using trenches is overlooked, pits are sometimes constructed in inconvenient places merely because these places provide the depth for a pit which was not offered by other sites more conveniently located. A conveniently placed trench is to be preferred to an inconveniently placed pit. A trench is essentially a shallow pit, and in view of the fact that silage has been conserved in trenches with an almost negligible waste, it is highly desirable that the merits of the trench system be more generally understood.

The trench pit is constructed with sloping approaches into and out of the trench, thus enabling the loaded sweep of green material to be taken direct into the pit and deposited at any part required, and as the sweep is tipped when being taken through the trench no time is lost in unloading the green material. When it is necessary to continue the building above ground level, a ramp placed at either end will enable easy haulage on to the top.

Undulating, rolling country is well adapted for the construction of pits and trenches, and facilitates filling of the harvested crop and loading of the ensilage when feeding out. Although trenches can be made on level country provided the water level is sufficiently low, even a slight rise is an advantage. A low hillock as shown in Fig. 3 provides a suitable site for a trench. As it is higher than ground level, good drainage is attained, and the loading of silage when feeding out is facilitated. Fig. 4 shows a completed trench pit on a slight elevation, as in Fig. 3.

Class of Material

The storage of ensilage in a trench pit, although perhaps the first method employed by man, is still one of the most practical ways of preserving green fodder. Provided the fundamental principle of air exclusion is acted upon—and air exclusion can only be obtained by pressure of material in the process of filling—then the trench pit will prove an undoubted success. The prospects of securing that desired pressure or consolidation are greater in the trench system than by any other method.

Although it is not sound practice to ensile green material which is approaching the advanced stage of maturity, there are times when a farmer through force of circumstances, such as unsuitable weather conditions or labour difficulties, finds he cannot harvest for hay as he intended. He then turns to ensilage as a way out of his difficulty, and he will find that the trench system will give the best results. Green material which is approaching the advanced stage of maturity is much more difficult to consolidate than sappy green material, which lies close and compact, a factor in itself naturally contributing towards air exclusion. The continuous trampling by the horses and the weighty green material of each load as it is delivered and built up gives the greatest possible consolidation, and will thus give the best results where a farmer finds it necessary to ensile crops which are not harvested in the early stage and are not as sappy as they should be when making ensilage.

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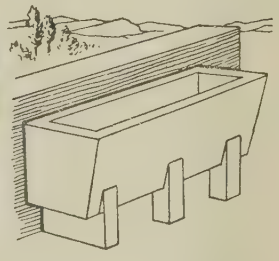

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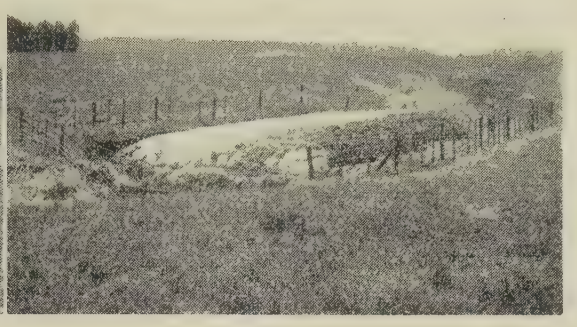

Fig. 6.—A view showing a hillside stack built against a 7-foot high terrace on the Strathmore Estate, Reporoa. *Fig. 7.*—A view showing the advantage taken of a fairly deep natural depression in which to build an ensilage pit on the Strathmore Estate, Reporoa.

The writer does not advocate the making of ensilage from crops advancing towards maturity; the aim should be to use material harvested in the green and succulent stage. However, should adverse circumstances arise, the farmer must make the best use of the material available so that, although not up to the highest standard, it will provide an efficient and economic result.

Dimensions Of Trench

The trench, as its name implies, should be long in proportion to its width. The depth need not be great, and the trampling of the horses and the weighty green material as each load is delivered will give the necessary consolidation. Four feet is quite a reasonable depth. The writer has seen good service from trenches 3 feet deep, with the height of the green material well above ground level, as there was sufficient soil from the excavation to heighten the sides and to cover the top. A convenient size for a trench is 33 ft. long, 12 ft. wide at the bottom, and 14 ft. wide at the top, the walls having a batter of 1 in 8, and the height being from 4 ft. to 6 ft.

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Fig. 5 shows a trench pit during feeding out in the winter on Mr. L. A. Newall's farm, Tokoroa. The loading of the silage was made easy. The trench is 35 ft. long, 15 ft. wide, and 4 ft. deep. From 160 to 200 tons of ensilage are made each year by the use of the tumbler sweep and trench pit, and no extra labour is engaged during the harvest. Practice and experience bring about improvement and efficiency, and in the delivery of the green material experience in the manipulation of the tumbler sweep goes a long way to lessen the work of building.

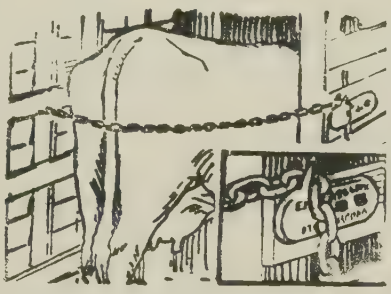
Hillside System

The hillside stack system is another labour-saving method, both in delivery of the harvested crop and loading when feeding out. A cut is made into the side of a hill or terrace to the size required, which facilitates delivery in building and loading when feeding out. Fig. 6 is a view of a hillside stack built against a 7 foot high terrace on the Strathmore Estate, Reporoa.

Natural depressions can be used to advantage on undulating country, and Fig. 7 shows the advantage taken of a fairly deep natural depression in which to build an ensilage pit on the Strathmore Estate, Reporoa.

The adoption of farming practices which will assist in avoiding heavy labour and the purchase of equipment must always be considered, and scarcity of farm labour and the present difficulty in securing equipment demand that the farmer make use of every opportunity to minimise these problems. The use of ensilage pits and trenches where the country is suitable —particularly the trench pit on small farms—should be given serious consideration. The preparation of these pits and trenches during the winter months will leave the farmer free to go straight ahead with the harvesting work and the making of ensilage at the proper time.

HAYES' Latest COW LOCK



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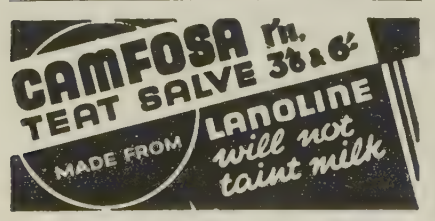

Slaughterings of Stock

THE following returns of slaughterings of stock at meat export slaughterhouses and abattoirs for the twelve months, May-April, 1940-41, have been compiled by the Livestock Division:—

District	Cattle	Calves	Sheep	Of which Ewes were	Lambs	Swine
North Island.						
Meat Export Slaughterhouses—						
Auckland	206,307	603,578	336,735	250,032	1,383,686	411,791
Poverty Bay-Hawkes Bay	70,916	57,798	635,600	365,766	1,535,432	35,145
Taranaki-Manawatu	100,936	219,989	435,357	287,080	1,672,981	211,884
Wairarapa-Wellington	46,858	30,965	380,574	222,351	1,170,164	49,299
Totals	425,017	912,330	1,788,266	1,125,229	5,762,263	708,119
Abattoirs	119,156	37,691	461,638	229,411	80,341	123,531
North Island Totals	544,173	950,021	2,249,904	1,354,640	5,842,604	831,650
South Island.						
Meat Export Slaughterhouses—						
Nelson-Marlborough	1,493	10,044	50,479	22,968	219,206	13,407
Canterbury	12,750	44,109	703,123	614,757	2,546,316	39,015
Otago-Southland	8,307	39,490	406,317	357,538	2,806,857	8,519
Totals	22,550	93,643	1,159,919	995,263	5,572,379	60,941
Abattoirs	54,058	13,965	262,705	27,006	46,286	50,809
South Island Totals	76,608	107,608	1,422,624	1,022,269	5,618,665	111,750
Dominion.						
Meat-expt. Slaughterhouses	447,567	1,005,973	2,948,185	2,120,492	11,334,642	769,060
Abattoirs	173,214	51,656	724,343	256,417	126,627	174,340
Grand Totals	620,781	1,057,629	3,672,528	2,376,909	11,461,269	943,400
In addition, the following stock were slaughtered at Rural Slaughterhouses during the 12 months ended 31/3/41—	73,931	1,697	231,039	Unknown	20,998	26,975
Same Period, 1939-40—						
Meat Export Slaughterhouses and Abattoirs	560,937	1,054,751	4,211,936	2,429,580	10,763,022	772,994
Rural Slaughterhouses	76,732	1,913	233,593	Unknown	21,597	28,215
Same Period, 1938-39—						
Meat Export Slaughterhouses and Abattoirs	508,033	1,016,863	3,958,576	2,063,085	9,912,674	966,378
Rural Slaughterhouses	84,351	2,053	220,560	Unknown	19,976	28,334

Slaughterings of Pigs

The 138,574 pigs slaughtered in meat export slaughterhouses and abattoirs during April were distributed in weight ranges approximately as follows:—

Under 60 lb.	2,034
60-120 lb.	83,962
121-160 lb.	39,936
161-180 lb.	7,251
Over 180 lb.	1,584
Sundries	3,807

The grading of porkers is 90 per cent. first quality and 10 per cent. second quality, and of baconers 75 per cent., 19 per cent. and 6 per cent. of prime 1's, prime 2's and second quality respectively.

In the different weight ranges of baconers, the quality is as follows:—

121-160 lb. .. .. 77%, 18%, 5% of P1, P2 and Second Quality.
161-180 lb. .. .. 64%, 26%, 10% of P1, P2 and Second Quality.

Ploughing

The last furrow in an excellent piece of ploughing.

Methods of Measuring Out the Land, Striking Out and Finishing

FOLLOWING the publication of an article entitled "Ploughs and Ploughing" by Messrs. A. R. Dingwall and M. J. Campbell in the May, 1940, issue of the "Journal of Agriculture," a subscriber, while complimenting the writers upon the excellence of the article, has suggested that some information relative to the measuring out of land to be ploughed, striking out (or feering), and finishing would be of interest to beginners. It will, of course, be readily realised that much of the information relating to such work—or for that matter, the operating of many other farm implements—is much easier assimilated from demonstrations than from writings.

By
J. G. McKAY,
Fields Instructor, Christchurch.

However, taking for a start the measuring off of land to be ploughed, the first operations should be to mark out the headlands by drawing a light plough furrow or scratch for **ins and outs.**

Headlands should be sufficiently wide to ensure that there will be no undue crowding of teams and implements when turning. Usually, a seven to eight-yard headland is allowed for a three-horse team, and up to eleven yards for a four- to six-horse team. Similarly, where tractors are used the width of headland required will vary according to size of implements and length of yoke.

Measuring Out Lands

There are several ways of measuring out into lands an area to be ploughed. The main object behind them all is to have the feerings as nearly parallel to each other as possible to facilitate finishing, as obviously a land which is wider at one end than the other will not present a neat finish. Many experienced ploughmen rely upon stepping as a means of measuring off lands, while others use feering poles of even length for the purpose. However the number of ploughmen who can consistently step a given distance into the correct number of yards is probably well in the minority, and while poles of even length are certainly a help, it is necessary, as in the case of stepping, to measure at the correct, or same, angle with each pole in order to bring them in line on the next feering sight. To this end, measuring down old cross finishes, where available, is helpful. Of these two methods of measuring, the beginner will probably find the even length poles most satisfactory.

Another method, not so common as those previously mentioned, is to obtain correct land width measurements at each base line for a start, and then line in the feering poles. Feerings may be from one to two chains apart, although occasionally in situations where drainage is important, ploughing

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may be done in half-chain lands, the finishes being ultimately used for carrying off surface water in the winter.

Striking Out

In striking out with tractor or horse-drawn riding ploughs, two or three poles are usually sufficient, as the operator can generally obtain an uninterrupted view from his position on the seat of such implements. In fact, some use only one long pole erected on the far headland and back sight on to some well-defined object in the distance.

With walking ploughs, the beginner particularly will find it an advantage to use up to five poles on lands of any appreciable length, the last two farthest away from the starting point being not more than say 15 yards apart, so that when the second last pole is reached only a short distance has to be travelled with but one pole standing.

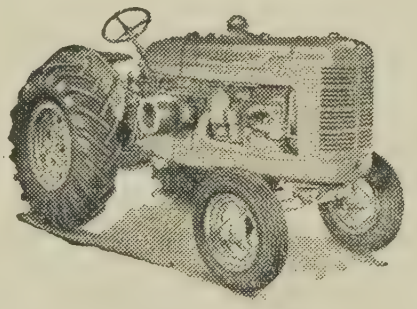
A good example of striking out.

The Feering

(a) **CLOSED FEERING.**

In ploughing match work, using special shares and other equipment, the type of feering aimed at is one in which the first two furrows showing on the feering are practically at the same angle and depth as subsequent furrows in the ploughing, and are yet no higher than them; or, in other words, if after the ploughing is completed a straight edge is laid across the crown of the feering, it will rest on the furrows on either side. Actually, it is the second furrows which form the crown of such a feering, the first two, drawn very lightly with a special narrow share, merely acting as packing to set up the crown furrows. This type of feering requires some time and considerable experience, and is more suited to ploughing match than farming conditions.

In ordinary farm practice, and using standard equipment, it is customary to draw the feering lightly by taking a



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shallow furrow with the front plough and increasing the depth of subsequent furrows. Generally, in backing up the strike-out, the front furrows are merely brought together so that no unploughed land is showing in the crown when the feering is completed. In certain situations where weed growth or heavy turf requires to be well covered, some prefer a good overlap in the crown furrows, but unless these furrows are shallow the overlap will result in the crown of the feering being too high.

(b) **OPEN FEERING.**

The open feering, or splitting the feering, represents throwing the furrows outwards for a start to form a channel where the crown of the feering will finally be, and then ploughing inwards or closing in the ordinary way. On fallowed land all furrows are sometimes brought into operation when splitting, but beyond helping to keep the plough steady and saving the little time required in making a few adjustments, there is probably no great advantage in doing so. On grassland or on land from which a crop has been fed off the neatest job will be made by using only the back plough in splitting. Thus, only two furrows have to be turned back when closing the channel, and if the front plough is drawn in when doing this a high crown may be avoided. If difficulty is experienced in getting the plough to hold to its work when splitting on comparatively hard, dry, or heavily-turfed land, it is an advantage to deepen the ploughing slightly on the return journey, thus forming a slight bank to take the thrust of the hind wheel.

The Finish

In single and double furrow ploughing the three common methods of finishing or completing the land may be described as follows:—(1) Ploughing right out; (2) ploughing right out and turning back and taking up a clay finish furrow; and (3) in double furrow ploughing, leaving one furrow to plough out and turning this together with the clay furrow to complete the finish.

Because of the deep channel it leaves, the first method is adopted only when the finish is ultimately to be used for drainage purposes.

Like the first, the second method has, from a beginner's viewpoint, the disadvantage that there is nothing to take the thrust of the back wheel when turning the last furrow out before taking up the clay furrow, and there is no bank for the front wheel to hold the plough in place when taking up the clay furrow. These disadvantages will be particularly obvious if the land is hard or is perhaps carrying a heavy turf.

The third method of finishing may, of course, be modified to suit any multi-furrowed plough by gauging the width as nearly as possible so that all gangs will be working when the finish is being completed.

If a light finish or one which will fill in readily under subsequent cultivation is desired, it is an advantage to reduce the depth slightly towards the finish, raising the plough at the start of the last round so that the back furrow is little more than skimmed off, and leaving one, two, or three furrows, as required by the type of plough, to be taken up when coming back to complete the finish.

If the width has been gauged correctly and the ploughing is straight, this skimmed-off back furrow automatically becomes the final finish furrow when completing the land. This last furrow is then no deeper than the remainder of the ploughing, and there is usually no necessity to lower the plough to obtain it.

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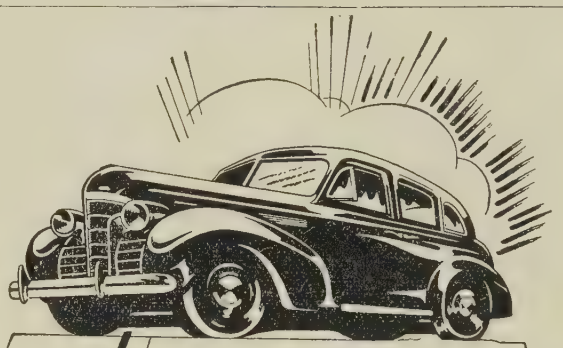

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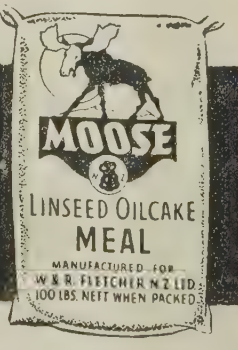

Testing of Purebred Dairy Cows

Review of N.Z. Certificate-of-Record System in 1940

By W. M. SINGLETON, Director of the Dairy Division, Wellington.

THE most apparent features of the accompanying statistical survey of C.O.R. testing in 1940 are first, the marked increase in average production represented by certificates issued, and second, the very slight falling-off in number of cows tested. The increase in average production may be explained to some extent by a more favourable season climatically, though not entirely, because most of the cows whose records are included in this survey calved in the spring of 1939, and until the beginning of 1940 climatic conditions were not altogether favourable to production. The mild winter and favourable spring of 1940, however, would naturally assist the cows to maintain production at a higher level for a longer period.

Nevertheless, a broader survey indicates a steady upward trend in average production of C.O.R. cows from year to year, which points to more careful selection, better handling, and an improved standard of tested pedigree cows generally. A more detailed analysis also indicates a praiseworthy concentration of effort on more specialised selection and breeding plans.

"Erinview Dawning," tested by M. D. Murray, Woodville; highest junior two-year-old Jersey; age, 2 years 23 days; 712.47 lb. fat in 365 days.

["Farmer Weekly," photo.

"Nordby Park Bluebell," tested by E. McKenzie, Clifton; highest senior two-year-old Jersey; age, 2 years 344 days; 768.78 lb. fat in 365 days.

It is noted that an increasing number of breeders attempt to prove selected sires by careful and systematic mating, and that their efforts are meeting with success. Fewer new names appear on our bull lists each year, but the average number of tested daughters for each sire shows a definite increase, and a higher average standard of performance.

The fact that, in spite of the increasing difficulties on the farms due to the influence of the war, C.O.R. entries are being well maintained is probably linked up with

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this matter of systematic breeding. Breeders are no doubt recognising the wisdom of keeping an unbroken chain of records behind the sires selected as the basis of their breeding plans.

First-class Certificates-of-Record were issued to 499 cows in 1940 compared with 493 cows in 1939, 431 cows being certificated in the yearly (365 days) division and the remaining 668 in the 305 days division. The comparative figures for 1939 being 435 and 58 respectively.

The 431 cows certificated in the yearly (365 days) division in 1940 were credited with an average production of 534.91 lb. fat, and the 68 cows in the 305 days division with 440.23 lb. fat. The comparative figures in 1939 were 499.02 lb. and 436.92 lb. fat respectively.

(1) C.O.R. YEARLY TEST DIVISION.

Over the 28 years from the start of the C.O.R. testing in 1912 to the present day, first-class Certificates-of-Record in the yearly (365 days) division have been issued to 11,535 cows. Classified in breeds, 8,763 were allotted to Jerseys, 1,965 to Friesians, 501 to Milking Shorthorns, 228 to Ayrshires, 69 Red Polls, 7 Shorthorns and 2 Guernseys. Table 1 provides a numerical summary of first-class certificates in the yearly division issued during the past two calendar years.

Table 1.

Breed	1940			1939		
	Ordinary	Repeat	Total	Ordinary	Repeat	Total
Jersey	338	30	368	337	33	370
Friesian	40	15	55	36	12	48
Milking Shorthorn	4	2	6	15	—	15
Ayrshire	2	—	2	2	—	2
Shorthorn ..	—	—	—	—	—	—
Red Poll ..	—	—	—	—	—	—
Totals ..	384	47	431	390	45	435

"Erinview Neat Maiden," tested by M. D. Murray, Woodville; highest three-year-old Jersey; age, 3 years 348 days; 780.37 lb. fat in 365 days.

["Farmer Weekly," photo.

Second Class Certificates Issued.

Second-class certificates in the yearly division were issued to 73 cows in the year under review, 58 to Jerseys, 12 to Friesians, 1 Milking Shorthorn and 2 to Ayrshires. Grouping the cows of each breed into one class, the 58 Jerseys averaged 518.24 lb. fat, the 12 Friesians 581.16 the 1 Milking Shorthorn 455.92 and the 2 Ayrshires 662.15, an average of 531.67 lb. fat for the 73 cows.

Period Between Calvings.

The average period between calving for commencement of test and calving subsequent to test for the 431 cows granted first-class certificates in the yearly test division in 1940 was 406 days as against 399 days in 1939. The rules governing the testing allow 455 days for this period

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"Hatcliffe Gaiety Girl," tested by M. Maras, Maungaturoto Railway; highest Jersey for 1940; age, 7 years 2 days; 953.31 lb. fat in 365 days.

between calvings, so that the average cow calved 41 days after the expiry of the twelve months testing period and seven weeks within the time limit set by the rules.

JERSEYS.

Class Leaders.

There was no change in the class leadership during the year under review. There were, however, some very creditable performances during the year, Mr. M. Maras' mature cow "Hatcliffe Gaiety Girl" being the highest producing Jersey in the yearly division with 953.31 lb. fat.

The present Jersey class leaders are as follows:—

Table 2.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Butter-fat.
		Yrs. dys	lb.		lb.	lb.
Jun. 2-yr-old Beechlands Summer Lass	A. Moreland & Sons, Te Rapa	1 343	275.5	365	15,467.2	899.25
Sen. 2-yr-old Ashvale Dreaming Stella ..	J. & G. W. Dobson, Lepperton	2 350	310.5	365	12,689.1	815.73
3-year-old Ivondale Silver Rainbow	P. J. Petersen, Waitara	3 327	309.7	365	15,073.4	950.63
4-year-old Woodlands Felicie ..	P. J. Petersen, Waitara	4 364	384.9	365	17,332.6	1,220.89
Mature Holly Oak's Annie ..	W. T. Williams, Pukehou	5 9	350.0	365	18,522.7	1,056.49

Jersey Class Averages.

In the calendar year 1940 Jersey cows received 368 certificates in the yearly division, as against 370 in 1939. The 368 certificates represent an average production of 533.26 lb. fat, the average for 1939 being 498.91 lb. fat. The averages class by class for 1940 are given in Table 3, together with the 1939 figures for comparison.

"Croydon Fern's Queen," tested by W. Crosby, Waipuku; highest four-year-old Jersey; age 4 years 326 days; 894.73 lb. fat in 365 days.

Table 3.

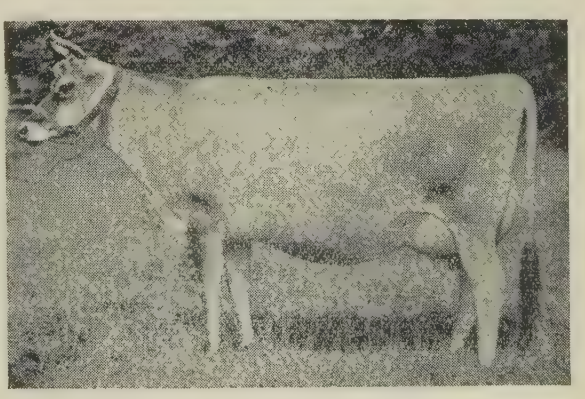
Class.	Number of Cows.	Average Yield for Season.		
		Days in Milk.	Milk.	Butter-fat.
		1940		
			lb.	lb.
Junior two-year-old ..	113	357	8,109.9	452.83
Senior two-year-old ..	30	360	9,337.0	525.14
Three-year-old	64	357	9,431.8	537.13
Four-year-old	54	359	10,238.6	577.38
Mature	107	355	10,549.5	595.89
		1939		
Junior two-year-old ..	116	355	7,593.6	440.75
Senior two-year-old ..	44	352	8,613.1	487.46
Three-year-old	66	350	9,090.1	519.28
Four-year-old	49	350	9,725.0	540.15
Mature	95	351	9,632.3	539.80

The averages, class by class, of all certificates issued to Jersey cows since the inception of the C.O.R. test in 1912 are given in Table 4.

Table 4.

Class.	Number of Certificates	Average Yield for Season.		
		Days in M.lk.	Milk.	Butter-fat.
			lb.	lb.
Junior two-year-old ..	3,843	349	7,347.5	414.92
Senior two-year-old ..	1,052	347	8,554.8	455.66
Three-year-old	1,479	347	8,788.2	493.49
Four-year-old	1,047	349	9,377.0	525.68
Mature	2,372	348	9,697.4	536.15
All	9,793	348	8,481.0	472.37

Average Test: 5.60 p.c.



"Wellworth Lady Gay," tested by T. W. Wardlaw, Waimana; highest senior two-year-old Jersey in 305-day division; age, 2 years 356 days; 545.81 lb. fat in 305 days.

["Farmer Weekly," photo.

"Sproston Bellbird," tested by Atkinson Bros., Inglewood; highest Jersey in 305-day division; age, 6 years 38 days; 671.56 lb. fat.

["Dairy Exporter," photo.

Table 4.

Jersey C.O.R. Bulls.

The Jersey cows which have received certificates to date are represented by 3,292 different sires. Of this number, 655 have qualified for the C.O.R. bull class, 21 new names being added during the year. A bull is classed as a C.O.R. bull when he has four or more first-class daughters, each daughter being from a different dam.

Champion butterfat bulls now total 58, only one name being added to the list in 1940. The qualifications for the champion butterfat bull (C.B.B.) class, which was inaugurated together with that of Jersey qualified bull (J.Q.B.) some years ago by the N.Z. Jersey Cattle Breeders' Association, are as follows: Each bull must have five or more daughters which, under first-class C.O.R. conditions, have produced 520 lb. fat if under three years of age when starting test, 580 lb. when starting between three and four years of age, 640 lb. when starting between four and five years of age, or 700 lb. when five years or over. It is not necessary for each daughter to be from a different dam. The corresponding standard for cows in the 305-day

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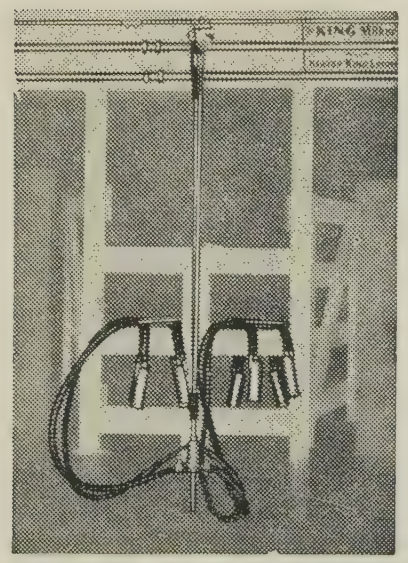

On left is shown a single bail of a King Milker installation. The Milker shown is fitted with the patent King Vacuum Reducing Unit which controls the Vacuum at the cups at 10in. while allowing the full vacuum to elevate and deliver the milk through the Releasor.

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division is 460 lb., 510 lb., 560 lb., and 620 lb. butterfat respectively.

There are two features of interest relating to champion butterfat bulls this year. The C.B.B. "Grannie's Knight," born on September 24th, 1913, and bred by Mr. E. Griffiths, New Plymouth, had a daughter on test in 1940. This daughter, "Basra Charmian," qualified for a first-class certificate with 520.59 lb. fat, aged 10 years 354 days. "Grannie's Knight" has 56 qualifying daughters (that is, daughters producing 100 lb. fat over standard). The new C.B.B., "Fairy Legion," is unusual in that, while having only five C.O.R. daughters, each daughter has a sufficiently high record to qualify this sire as a champion butterfat bull. It is also interesting that three of his daughters each have two records, either of which would qualify the sire for the C.B.B. class.

FRIESIANS.

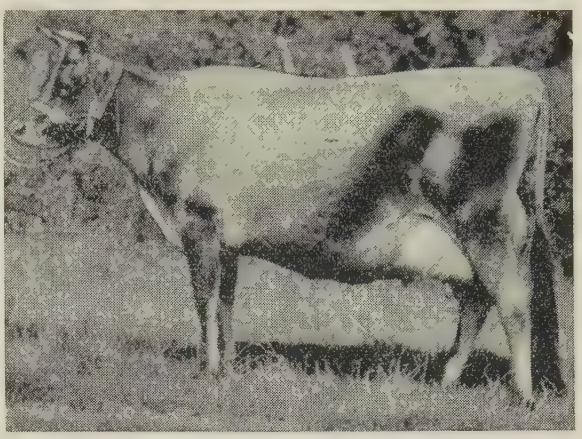
Class Leaders.

There were no changes in Friesian class leaders during 1940. There were, however, some excellent performances by Friesian cows. "Oakview Keyes Trojan," owned by Mr. A. W. Montgomerie, of Mangere, produced 971.84 lb. fat and is for the second time in succession the highest first-class Friesian. This cow holds the junior two-year-old class leadership with 836.98 lb. fat, and is obviously an outstanding cow, reflecting great credit on Mr. Montgomerie.

The Friesian class leaders are as follows:—

Table 5.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk	Butter-fat.
		Yrs. dys.	lb.		lb.	lb.
Jun. 2-yr-old						
Oakview Keyes Trojan	A. W. Montgomerie, Mangere	2 131	..	365	22,146.8	836.98
Sen. 2-yr-old						
Pareora Echo Blossom ..	T. Sheriff, Clandeboye	2 223	262.8	365	22,671.9	819.81
Jun. 3-yr-old						
Monavale Queen Bess	T. H. Richards, Cardiff	3 56	282.6	365	21,609.3	800.18
Sen. 3-yr-old						
Totara C.R. Buttercup ..	Piri Land Co. Auckland	3 247	336.7	365	25,885.3	989.10
Jun. 4-yr-old						
Totara Veeman Lulu ..	Piri Land Co. Auckland	4 12	349.7	365	22,364.2	946.78
Sen. 4-yr-old						
Totara C.R. Buttercup ..	Piri Land Co. Auckland	4 267	375.2	365	27,108.1	1,079.14
Mature						
A'cartra Clothilde Pietje ..	Vernon Marx, Mangatoki	7 355	350.0	365	31,312.5	1,145.24



"Hatcliffe Dusky Maid," tested by T. H. Gooch, Huinga; highest three-year-old Jersey in 305-day division; age, 3 years 359 days; 537.10 lb. fat.

["Farmer Weekly," photo.

Friesian Class Averages.

Certificates issued to Friesian cows in 1940 totalled 55, compared with 47 in 1939. The average production for 1940 was 555.19 lb. fat, while in 1939 it was 515.86. The Friesian class averages for 1940, and comparative figures for 1939 are given in Table 6.

Table 6.

Class.	Number of Cows.	Average Yield for Season.		
		Days in Milk.	Milk.	Butter-fat.
			lb.	lb.
1940				
Junior two-year-old ..	12	345	13,124.1	478.12
Senior two-year-old ..	4	330	11,845.4	466.42
Junior three-year-old ..	2	347	12,499.4	521.21
Senior three-year-old ..	1	365	18,739.1	717.54
Junior four-year-old ..	6	346	14,932.8	541.13
Senior four-year-old ..	5	361	18,463.4	666.84
Mature	25	348	16,135.5	583.67
1939				
Junior two-year-old .	21	343	11,213.0	431.51
Senior two-year-old ..	2	356	15,374.1	528.83
Junior three-year-old .	4	344	14,453.7	516.88
Senior three-year-old ..	2	358	19,161.9	723.91
Junior four-year-old ..	..	..	..	..
Senior four-year-old .	2	365	18,744.9	637.79
Mature .. .	17	336	15,621.6	579.99

The averages, class by class, of all certificates issued to Friesian cows since the start of the C.O.R. system in 1912 are given in the following table.

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Table 7.

Class.	Number of Certificates.	Average Yield for Season.		
		Days in Milk.	Milk.	Butterfat.
			lb.	lb.
Junior two-year-old ..	741	347	12,074.4	430.28
Senior two-year-old ..	296	348	12,903.6	460.73
Junior three-year-old ..	210	344	13,608.3	484.65
Senior three-year-old ..	213	338	14,351.6	516.10
Junior four-year-old ..	153	344	15,346.3	545.77
Senior four-year-old .	155	347	16,351.3	572.23
Mature	683	344	16,257.1	576.82
All .. .. Average test: 3.55 p.c.	2,451	349	14,144.1	503.10

Friesian C.O.R. Bulls.

The list of Friesian C.O.R. bulls now stands at 135 names. Five new names have been added during the year. The 2,018 cows (including 305-day) certificated to the end of 1940 are represented by 739 sires.

MILKING SHORTHORNS.

Class Leaders.

Only six Milking Shorthorns were certificated during 1940, and no changes in class leadership took place. The highest producer of the year was "Bon Accord Nancy Lee" in the mature class. She produced the creditable figure of 675.80 lb. fat in 365 days, and is owned by Miss Rita Arnold, Nelson.

The Milking Shorthorn class leaders are as follows:—

Table 8.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Butterfat.
		Yrs.dys.	lb.		lb.	lb.
Jun. 2-yr-old Matangi Quality 4th	Ranstead Bros., Matangi	2 109	251.4	365	14,572.8	591.89
Sen. 2-yr-old Pinedale Beauty 4th	G. D. Hall & Son, Otorohanga.	2 362	311.7	365	13,273.0	580.62
Jun. 3-yr-old Matangi Quality 4th	Ranstead Bros., Matangi	3 153	292.3	365	16,281.4	678.02
Sen. 3-yr-old Matangi Ruth 2nd	Ranstead Bros., Matangi	3 304	307.4	365	14,032.7	747.86
Jun. 4-yr-old Matangi Matilda 4th	Hon. Mrs. E. J. Blyth, Kohimarama	4 0	313.5	358	14,640.2	630.38
Sen. 4-yr-old Ashley Bank Winsome	Peach Bros., Sefton	4 298	378.3	365	17,687.7	730.93
Mature Glenthorpe Lady	A. J. Melville, Buckland	Mature	350.0	365	20,136.2	856.85

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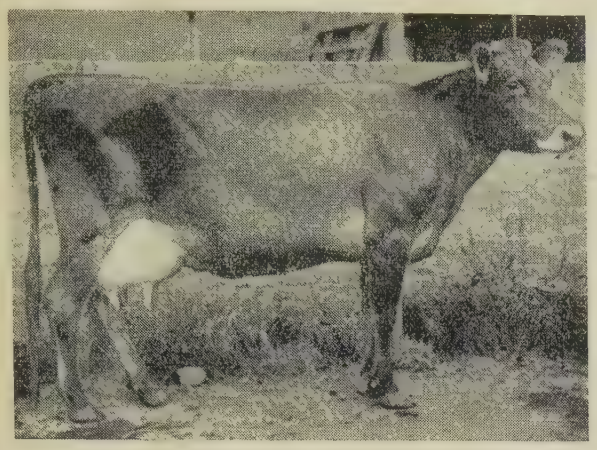

"Hatcliffe Fortune," tested by H. J. Kaye, Huinga; highest four-year-old Jersey in 305-day division; age, 4 years 360 days; 545.80 lb. fat.

["Farmer Weekly," photo.

Milking Shorthorn Class Averages.

The average production of the six Milking Shorthorn cows tested in 1940 was 484.02 lb. fat from 12,118.8 lb. milk in an average milking period of 343 days. Only one cow was represented in the junior two-year-old class, one in the senior four-year-old class, and four in the mature class. The fifteen Milking Shorthorn cows certificated in 1939 yielded an average of 453.40 lb. fat from 10,988.2 lb. milk in 343 days.

The averages, class by class, of all certificates issued to Milking Shorthorns since this breed was first tested in 1914 to the end of 1940 are given in the following table.

Table 9.

Class.	Number of Certificates	Average Yield for Season.		
		Days in Milk.	Milk.	Butter-fat.
			lb.	lb.
Junior two-year-old ..	63	350	8,538.4	352.48
Senior two-year-old ..	47	350	9,015.2	375.94
Junior three-year-old ..	30	338	9,772.4	400.98
Senior three-year-old ..	37	342	10,979.5	453.85
Junior four-year-old ..	28	350	11,200.9	461.70
Senior four-year-old ..	40	343	11,621.1	441.21
Mature	308	342	11,899.6	477.70
All	553	344	11,039.0	445.58
Average Test: 4.03 p.c.				

"Turepo R.L. Wakalona," tested by C. A. Knutson, Dalefield; highest junior two-year-old Friesian; age, 2 years 11 days; 635.87 lb. fat in 365 days.

"Rosevale Lady Abbekerk Echo," tested by C. Humm & Sons, Wainui; highest junior three-year-old Friesian; age, 3 years 78 days; 618.74 lb. fat in 365 days.

Milking Shorthorn C.O.R. Bulls.

One new name was added to the list of Milking Shorthorn C.O.R. bulls in 1940. The list now contains 19 names. The 508 cows of this breed certificated to the end of 1940 (including seven in the 305-day division) represent a total of 183 sires.

AYRSHIRES.

Only two cows of this breed were tested in 1940, and there was no change in class leadership. Credit for the highest production for the year goes to "Thornycroft Bright Heather 5," owned by Mr. F. S. Hutchings, Ngakuru, with a fat production of 432.86 lb. fat in 322 days.

Ayrshire class leaders are shown in Table 10.

Table 10.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk	Butter-fat.
		Yrs. dys.	lb.		lb.	lb.
2-year-old						
Fair Maid of Greenbank	W. Moore, Homebush	2 27	243.2	365	12,281.3	673.56
3-year-old						
Maesgwyn Victoria	C. Morgan Williams, Kaiapoi	3 250	302.5	365	16,507.7	646.98
4-year-old						
Ivanhoe Fancy	A. M. Weir, Menzies Ferry	4 308	344.3	365	14,207.7	713.93
Mature						
Floss of Braeside	W. Moore, Homebush	7 287	350.0	365	20,305.5	832.72

The averages, class by class, for all certificates issued to Ayrshire cows since testing began in 1912 are given in the following table.

Table 11.

Class.	Number of Certificates	Average Yield for Season.		
		Days in Milk.	Milk.	Butter-fat.
			lb.	lb.
Two-year-old	76	344	9,045.9	375.41
Three-year-old	41	347	10,111.8	416.40
Four-year-old	27	346	11,378.0	459.52
Mature	111	348	11,914.7	485.26
All	255	346	10,713.0	438.72
Average Test: 4.09 p.c.				

"Turepo R.L. Fobes," tested by C. A. Knutson, Dalefield; highest senior three-year-old Friesian; age, 3 years 264 days; 717.54 lb. fat in 365 days.

"Oakview Keyes Trojan," tested by A. W. Montgomerie, Mangere; age, 4 years 245 days; 971.84 lb. fat in 365 days; highest Friesian 1939 and 1940.

Ayrshire C.O.R. Bulls.

No new bulls have been added during 1940 to the C.O.R. bulls list, which at present comprises 13 names. The total number of sires represented by Ayrshire cows tested to date is 135.

RED POLLS.

No Red Polls have been tested under C.O.R. conditions since the year 1936.

(2) C.O.R. 305-DAY TEST DIVISION.

During 1940, 68 cows received first-class certificates in the 305-day division. 59 being granted to Jerseys, 6 to Friesians and 3 to Milking Shorthorns. In addition, seven second-class certificates were issued in this division, all of them going to Jersey cows.

First-class certificates in the 305-day division, which was first introduced in 1930, have now been awarded to 680 cows, of which 614 were Jerseys, 53 Friesians, 7 Milking Shorthorns, 5 Ayrshires, and 1 Red Poll.

JERSEYS.

Class Leaders.

Here again, as in the yearly division, there was no change in class leadership, but a few cows finished with

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"Haeremai Snowy 4th," tested by G. H. B. Lill, Ashburton; highest Milking Shorthorn in the 305-day division; age, 4 years 18 days; 600.56 lb. fat.

[Barwell Studios, photo.

quite creditable records, "Sproston Bellbird," owned by Messrs. Atkinson Bros., Inglewood, being the best Jersey in this division with a fat production of 671.56 lb. at the age of 6 years 38 days.

Table 12 shows Jersey class leaders in the 305-day division.

Table 12.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Butter-fat.
		Yrs.dys.	lb.		lb.	lb.
Jun. 2-yr-old						
Kass Goldie's Promise	W. D. Dron, Nelson	2 31	253.6	305	9,407.5	591.16
Sen. 2-yr-old						
Ashvale Dreaming Stella	J. & G. W. Dobson, Lepperton	2 350	285.5	305	11,317.8	711.51
3-year-old						
Pukeroa Wheaten Wafer	F. Geck, Te Kauwhata	3 165	303.5	305	12,853.9	700.76
4-year-old						
Hatcliffe Lady Gay	H. J. Kaye, Huinga	4 60	329.5	305	10,619.9	664.49
Mature						
Cyrilla's Twylish Girl	E. J. Clough, Inglewood	11 88	360.0	305	17,645.4	906.15

The production average according to age class of the 59 first-class certificates issued to cows of the Jersey breed in 1940 are given in Table 13, the average per cow being 432.57 lb. fat from 7,787.1 lb. milk in an average lactation period of 296 days, the average test being 5.50 per cent.

Table 13.

Class.	Number of Cows.	Average Yield for Season.		
		Days in Milk.	Milk.	Butter-fat.
			lb.	lb.
Junior two-year-old ..	15	300	6,979.1	384.14
Senior two-year-old ..	3	280	7,722.2	423.06
Three-year-old ..	22	301	7,818.5	426.32
Four-year-old	6	305	8,400.6	488.39
Mature	13	302	8,398.1	475.47

The average, class by class, of all certificates issued to Jersey cows since the introduction of the 305-day division of the C.O.R. testing in 1930 are given in the following table.

Table 14.

Class.	Number of Certificates	Average Yield for Season.		
		Days in Milk.	Milk.	Butter-fat.
			lb.	lb.
Junior two-year-old ..	246	299	6,675.0	379.19
Senior two-year-old ..	61	299	7,990.4	436.01
Three-year-old	125	299	8,115.5	448.78
Four-year-old	74	298	8,538.4	479.82
Mature	131	299	9,049.1	494.79
All .. .. .. Average Test: 5.56 p.c.	637	299	7,788.3	433.70

FRIESIANS.

Class Leaders.

Of the six Friesians tested in the 305-day division in 1940 four were mature, one a junior four-year-old and one a junior two-year-old, but none of these seriously challenged the existing class leaders, which are shown in Table 15. However, "Fairburn Lady Taureau," who last year gained the senior four-year-old class leadership, has again put up a record of 677.67 lb. fat as a mature cow, which makes her the best Friesian in the 305-day division for the year.

Table 15.

Name of Cow and Class.	Tested by	Age at Start of Test.	Fat required for Certificate.	Yield for Season.		
				Days.	Milk.	Butter-fat.
		Yrs.dys.	lb.		lb.	lb.
Jun. 2-yr-old						
Sealands Magpie Pietertje 2nd	H. G. A. Cameron, Weraroa	2 22	252.7	305	11,727.4	454.16
Sen. 2-yr-old						
Rosevale Beauty Posch Griselda	E. H. Watson, Windsor	2 216	272.1	305	12,273.5	468.50
Jun. 3-yr-old						
Totara De Kol Nina	Piri Land Co. Auckland	3 117	298.7	305	16,005.9	501.37
Sen. 3-yr-old						
Paepaetahi Jewel	A. F. Perkins, Taradale	3 354	322.4	305	12,342.7	529.94
Jun. 4-yr-old						
Fairburn Princess Pauline	H. Jarden, Hillsborough	4 6	324.1	263	11,443.1	395.68
Sen. 4-yr-old						
Fairburn Lady Taureau	W. C. Miller, Motukarara	4 246	348.1	305	14,846.1	592.17
Mature						
Longbeach Transvaal Star 11th	J. H. Grigg, Ashburton	10 42	360.0	281	16,744.3	685.83

"Paerora Echo Butter Girl," tested by R. E. A. Gillman, Rangiora; highest mature Friesian; age, 10 years 243 days; 816.22 lb. fat in 365 days.

"Bon Accord Nancy Lee," tested by Miss Rita Arnold, Nelson; highest Milking Shorthorn 1940; age, 7 years 117 days; 675.80 lb. fat.

Friesian Class Averages.

The six Friesians gaining certificates during the year represent an average production per cow of 487.36 lb. fat from 13,734.3 lb. milk in an average of 300 days. Comparative figures for 1939 were 557.99 lb. fat, 13,699.0 lb. milk and 293 days respectively.

The average, class by class, of all certificates issued to Friesian cows since the 305-day test was introduced in 1930 are given in the following table.

Table 16.

Class.	Number of Certificates	Average Yield for Season.		
		Days in Milk.	Milk.	Butter-fat.
			lb.	lb.
Junior two-year-old ..	21	298	10,024.6	369.30
Senior two-year-old ..	6	305	10,155.4	373.32
Junior three-year-old ..	4	298	11,974.5	453.02
Senior three-year-old ..	4	305	11,502.4	423.39
Junior four-year-old ..	2	284	11,327.8	389.81
Senior four-year-old ..	2	305	15,079.0	574.94
Mature	17	296	14,156.8	519.84
All:	56	298	11,764.9	433.35
Average Test: 3.68 p.c.				

MILKING SHORTHORNS.

Only three cows of this breed were tested in 1940, Mr. G. H. B. Lill's "Haeremai Snowy 4th" being the highest producer with 600.56 lb. fat as a junior four-year-old. The three cows tested this year gave an average of 490.58 lb. fat from 11,125.8 lb. milk, the average milking period being 299 days.

AYRSHIRES.

No Ayrshire cows were tested in this division during 1940.

THANKS.

We desire to record our appreciation of the continued courtesy and co-operation given by secretaries and others of the various breeders' associations connected with the C.O.R. testing.

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HOW TO APPLY GROUND LIMESTONE TO PASTURES

Mowing Trial Gives Important Results To Farmers

An accurate yield trial on pasture carried out at the Marton Experimental Area has shown that the best way to apply ground limestone is by means of heavy dressings at comparatively infrequent intervals rather than light applications every year.

By A. G. ELLIOTT, Crop Experimentalist, and P. B. LYNCH, Assistant Crop Experimentalist.

THE question of how agricultural ground limestone should be applied to pastures is of considerable practical importance to New Zealand farmers. Lime is commonly applied to grassland in small amounts of up to 5 cwt. annually with the superphosphate topdressing, and there is reason to believe that such application in many cases is of little real value.

The reason advanced for this statement is based on the fact that most soils of New Zealand have a considerable lime requirement, and until this is satisfied the effect of small dressings of lime is thought to be negligible. To quote a mechanical example, the siphon in the bucket illustrated in Fig. 1 will not work until sufficient water is added to reach level A. Quantities of water to fill the bucket to levels B and C do not start the siphon. Similarly small amounts of limestone may be largely ineffective, whereas a heavier dressing may cause a marked response in pasture production.

Another question of importance in liming practice is the best method of applying lime. Should one topdress it in very heavy amounts at infrequent periods or in smaller quantities every year or two years? It was to find an answer to these questions and to check up on the various assumptions as to the best method of applying lime that Mr. A. W. Hudson, former Crop Experimentalist to the Fields Division, initiated a trial at the Marton Experimental Area in 1932. Work on this trial has been supervised since then by Mr. J. W. Woodcock and his successor, so that we now have eight years of pasture production figures with which to answer liming problems.

TREATMENTS PER ACRE.

1. No lime (control).

2. Carbonate of lime 2 tons (initial application only).

3. Carbonate of lime 1 ton every four years.

4. Carbonate of lime 10 cwt. every two years.

5. Carbonate of lime 5 cwt. annually.

6. Carbonate of lime 12 cwt. initial application and 4 cwt. annually.

In eight years, therefore, Treatments 2 to 6 inclusive each received a dressing of 2 tons of limestone. In addition, all plots received 4 cwt. of superphosphate and 2 cwt. of 30 per cent. potash

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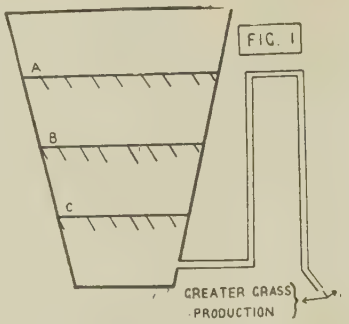
salts a year. Each treatment was replicated 12 times.

These treatments were compared by a "mowing and grazing technique." *1. By this means, sheep grazing was alternated with mowing, so that continuous production records were secured without affecting the sward by too constant use of the mower. The management of the trial area could be likened to that of intensive rotational grazing with sheep.

A sample of herbage was taken each time the plots were mown and weighed, and this was dispatched to Mr. B. W. Doak, Plant Chemist, Palmerston North, for the determination of dry matter. This was found by drying the grass in a vacuum at 55 deg. C. Samples of herbage were periodically bulked for further chemical analysis. In addition, Mr. Doak was responsible for an exhaustive study of the effect of the lime dressings on the soil and for this purpose the soil of the plots was sampled each year just before the date of lime application and to depths of 0 to 2 in., 2 to 4 in., 4 to 6 in., and 6 to 10 in. respectively. A brief summary of Mr. Doak's findings will be given in this paper. *2.



The limestone used had a calcium carbonate content of 92.9 per cent., and its fineness of grinding was such that 52 per cent. passed a 30 mesh sieve. Lime was applied in the June-July period in each year, while the superphosphate and potash salts were applied in two dressings of 2 cwt. of the former and 1 cwt. of the latter in August-September and December-January.

1. Hudson, A. W.: Imperial Bureau of Plant Genetics: Herbage Plants: Bulletin 11: 1933, 21-35.

*2. A more detailed account of this trial will be published in the "N.Z. Journal of Science and Technology."

Botanical Composition

Officers of the Grasslands Division, Palmerston North, studied the sward of the trial at various stages, and their findings may be briefly summarised as follows.

The dominant species has always been perennial ryegrass, which has given the majority of the pasture production throughout the year. Cocksfoot has formed a considerable proportion of the mown herbage, and there have been variable but relatively small amounts of sweet vernal, crested dogstail, yorkshire fog, and browntop, although the total production of these species would amount on the average to approximately 15 per cent. of the production from the sward as a whole. *Poa trivialis* has at times been prominent to the exclusion of ryegrass and clovers, and, as it is a slower growing species, it has had the effect of slowing down production, particularly in the early spring. The strain of white clover was unfortunately close growing and not vigorous, and the sward would have been much improved had a certified line of this species been sown. The trial area was sown be-

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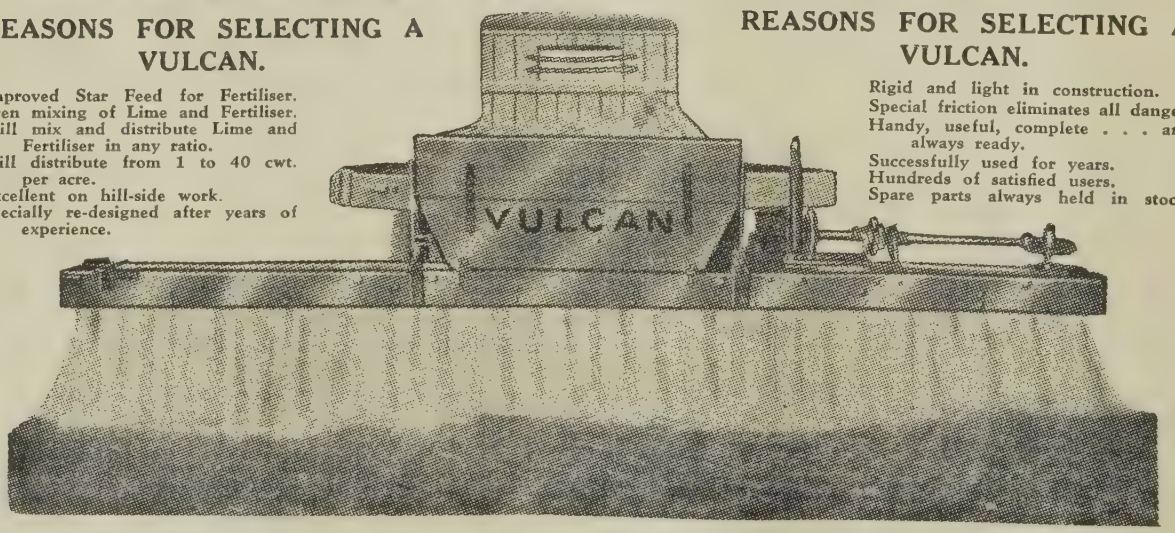

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fore certification was introduced, and there was no means of being certain as to the type of clover sown.

Responses to lime have been mainly observed in vigour of growth, an increase in white clover and a darker green colour. The limed plots frequently had more growth and a denser sward, but the greatest differences were seen in dry weather, particularly in the autumn period, when the effect of the lime was to maintain the green colour of the pasture.

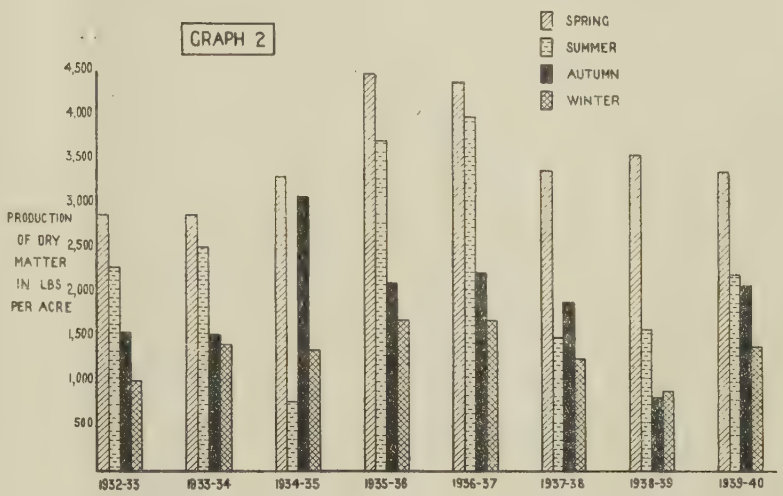
Seasonal Production

A study was made of the variations in seasonal production of the "no lime" treatment over the 8-year trial period. Graph 2 shows the production of dry matter of herbage in each season, and for the purposes of this graph the spring period has been taken as the months September, October, and November; the summer, December, January, and February; the autumn, March, April, and May, and the winter, June, July, and August. The actual period taken varies somewhat because of the different dates of cutting in each year.

Over the eight-year period the average production of dry matter per year was 9,157 lb. per acre, but the production each year varied from 6,927 lb. to 12,325 lb. The spring production averaged 39 per cent. of the yearly production, but varied between 34 and 52 per cent.; the summer production averaged 25 per cent., but varied between 9 and 32 per cent.; the autumn production averaged 21 per cent., but varied between 12 and 36 per cent.; and the winter production averaged 15 per cent., but varied between 13 and 17 per cent.

Taking these figures in conjunction with Graph 2, five important features are emphasised:—

PRODUCTION FROM TREAT 1 (NO LIME) IN SEASONAL PERIODS



(1) The variation in seasonal production within each year.

(2) The variation in total production from year to year.

(3) The unreliability of the autumn flush of growth.

(4) A tendency for a summer slump in pasture production.

(5) The relative constancy of the spring and winter production respectively.

All these features of production point to one thing—the necessity for adequate reserves of supplementary feed whether by conserving the surplus spring production as hay or silage or by the growing of supplementary crops. It will be noted that the spring and winter productions are at a comparable level in all years, including those of high and low production, but that high summer yields and reasonable growth in the autumn are a feature of years of high production. In 1934-35 good autumn growth followed a very dry summer and saved the situation, but there is a great risk that this autumn flush will be missed. The lesson to be learned is—CONSERVE THAT SPRING PRODUCTION.

Effect of Lime On the Yield

Table 1 lists the production of green herbage in cwts. per acre.

RELATIVE YIELDS - TREAT 3 - 100 - BASED ON PRODUCTION OF GREEN MATERIAL

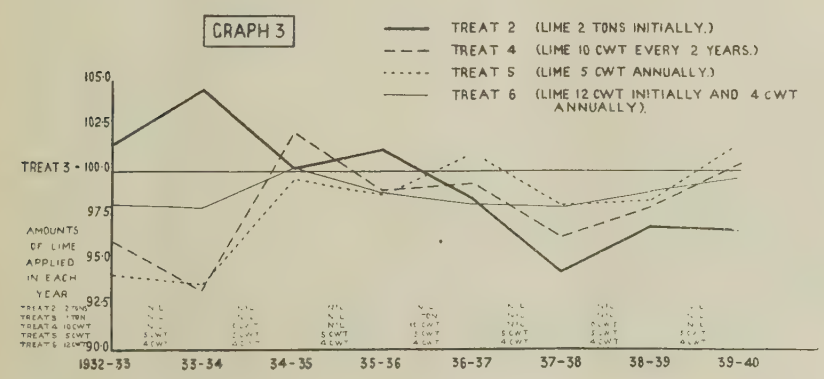


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Table 1: PRODUCTION OF GREEN HERBAGE IN CWT. PER ACRE.

Year.	Treatments.					
	1	2	3	4	5	6
1932/33	326.7	**356.8**	**351.6**	337.7	331.2	**344.9**
1933/34	387.7	**463.8**	**443.9**	**414.3**	**415.7**	**434.4**
1934/35	465.5	**498.7**	**497.9**	**508.7**	**496.0**	**498.9**
1935/36	648.6	**692.6**	**684.3**	676.6	675.1	676.1
1936/37	702.7	734.2	**745.5**	**740.5**	**752.7**	732.3
1937/38	350.3	356.8	**378.2**	364.2	370.9	370.2
1938/39	365.6	**421.3**	**435.0**	**426.3**	**427.7**	**429.6**
1939/40	439.9	**472.9**	**489.0**	**490.7**	**496.3**	**486.9**
Total Period	3687.2	**3997.0**	**4025.4**	**3959.0**	**3965.8**	**3973.4**

In this table the weights of green herbage have been used, because it is on these figures that we can examine the results statistically. On this basis, we find that those yields which are in bold type are significantly better than the yield of Treatment 1 (no lime). In conjunction with this table Graph 3 has been prepared, in which the yield of Treatment 3 (lime 1 ton every four years) has been taken as 100, and the yields of the other treatments adjusted on this basis. We can now examine the different effects of the various treatments in comparison with Treatment 3.

Treatment 2 (lime 2 tons initial dressing) gives higher production in the first four or five years and lower production subsequently.

Treatment 4 (lime 10 cwt. every two years) yields less than Treatment 3 for the first two years, and after the third year it tends to give slightly lower yields than that dressing. All treatments yield less than Treatment 3 in the 1937-38 and 1938-39 seasons, for it is here that the second heavy lime application shows to greatest effect.

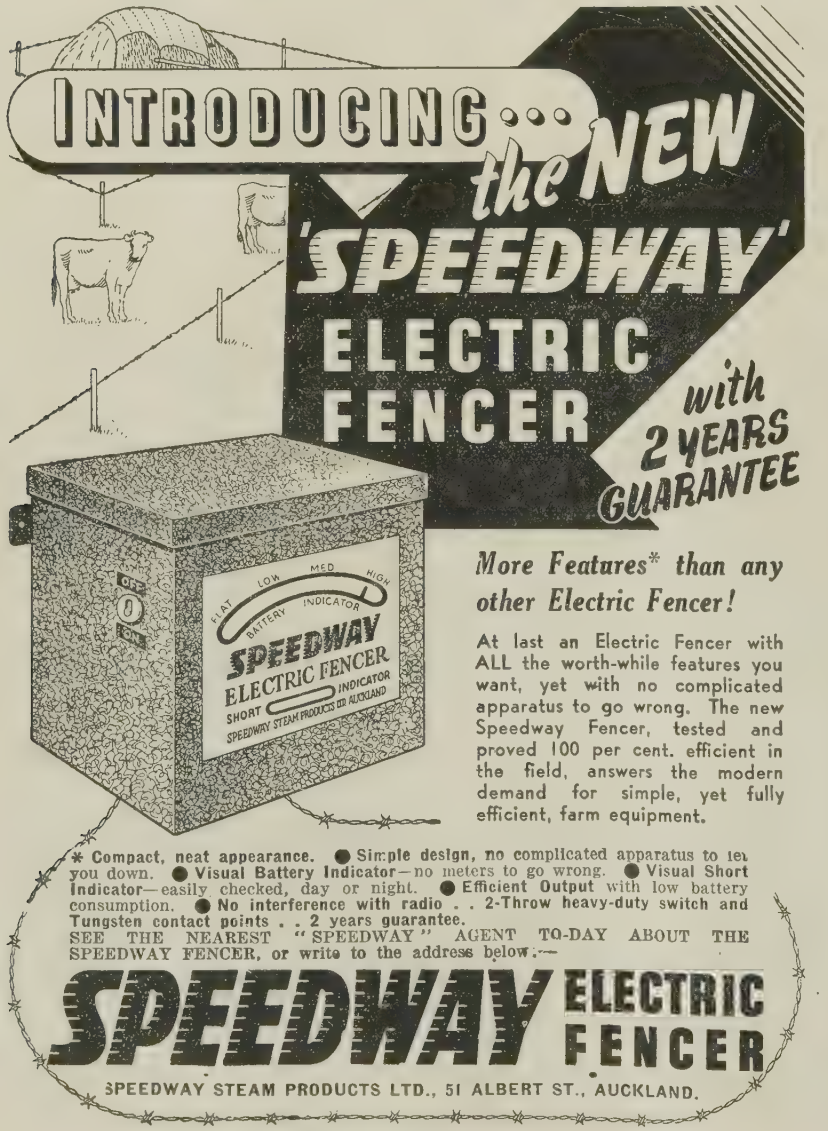
Treatment 5 (lime 5 cwt. annually) takes two to three years to reach the production of Treatment 3, but since that period the yields are comparable with those of the latter.

Treatment 6 (lime 12 cwt. initially and 4 cwt. annually) yields less than Treatment 3 in nearly every year, but the difference is very small.

We can conclude, therefore, that Treatment 3 has been the best dressing both from the point of view of greatest total production and from the spread of this increase of production over the eight-year period. It is in the latter respect that Treament 2 fails, while Treatments 4 and 5 are at a big disadvantage in taking at least two years before the maximum response is attained.

The parallel example of the bucket and siphon of Fig. 1 will again illustrate the position. We have to build up the lime status of the soil to the level of A (on the Marton soil by applying about 1 ton of lime) before we get that marked increase in production. However, it is not correct to say that the small dressings are wasted, for Treatment 5 has illustrated that we can build up the lime of the soil to the required level by means of small dressings, although in so doing we lose several years' extra production. That is to say, we may fill the bucket slowly or quickly, but as we want returns as soon as possible, we would do best to fill it quickly.

There is also the possibility of a large loss of lime by leaching through the soil, such as might occur in high rainfall districts, and here the small lime applications might not compensate for the loss and be largely ineffective. It is as if there were a hole in the bucket, and we cannot make the siphon work unless we fill the bucket quickly. At Marton this loss is not particularly serious, and the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effect of the heavy lime applications is still considerable after three or four years.

It may be recommended, therefore, that at Marton a dressing of from 15 to 20 cwt. of ground limestone every three or four years is the best way of satisfying the lime requirement of the soil. In addition, it may be safely concluded that, in general, heavy dressings at comparatively infrequent intervals are the best way to apply lime. The actual quantities needed will vary with the soil and climate, but over perhaps the greater part of farming land of New Zealand the dressings recommended for Marton soils would be found quite satisfactory.

Effect of Lime On the Herbage

The herbage on plots receiving lime was definitely richer in the valuable element calcium contained in lime and slightly richer in phosphorus as well. All treatments, including the "no lime" plots, showed a marked seasonal fluctuation, the calcium being high in the summer and autumn and low in the winter and early spring. This effect is considered to be due to the similar seasonal fluctuations in the amount of clover in the sward, for it has been shown by Doak* that there is approximately twice as much calcium in the clover species as there is in the grasses.

Effect of Lime On the Soil

The effect of lime on the soil may be briefly summarised by saying that a very close relationship was found between the extent to which the added lime had entered the soil complex and the yields of herbage resulting from such lime application. Doak gives an excellent and detailed account of his work in his paper mentioned earlier. In addition, he found that the free calcium carbonate of the limestone did not completely disappear from the 2-ton application for about 5 years. He estimated the annual loss by leaching from the lime treatments to be between 500 and 600 lb. calcium carbonate (5 to 6 cwt. of good limestone) a year, although this loss would be equivalent only to about 3 to 4 cwt. limestone if superphosphate were applied at 4 cwt. per acre each year. This latter effect is probably due to the high percentage of calcium in superphosphate.

We have therefore additional evidence in support of the conclusions reached from the yield figures. The duration of effect of heavy lime dressings is marked for at least three to four years, and the loss is between 3 and 4 cwt. annually if super is applied. The application of from 15 to 20 cwt. of limestone every three to four years will, therefore, maintain the lime status of the soil at a satisfactory high level. This high level is best attained in the first place by the application of a heavy dressing of about 1 ton of limestone per acre.

*Doak: N.Z. Journal of Sicence and Technology: 1931: 13: 28-33.

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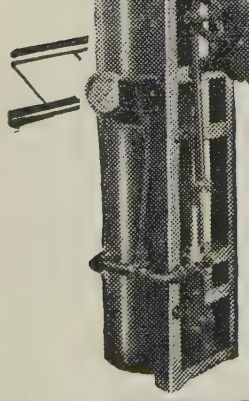

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Novel Use Of Stream Water For Power, Shed Cleaning and Cream Cooling

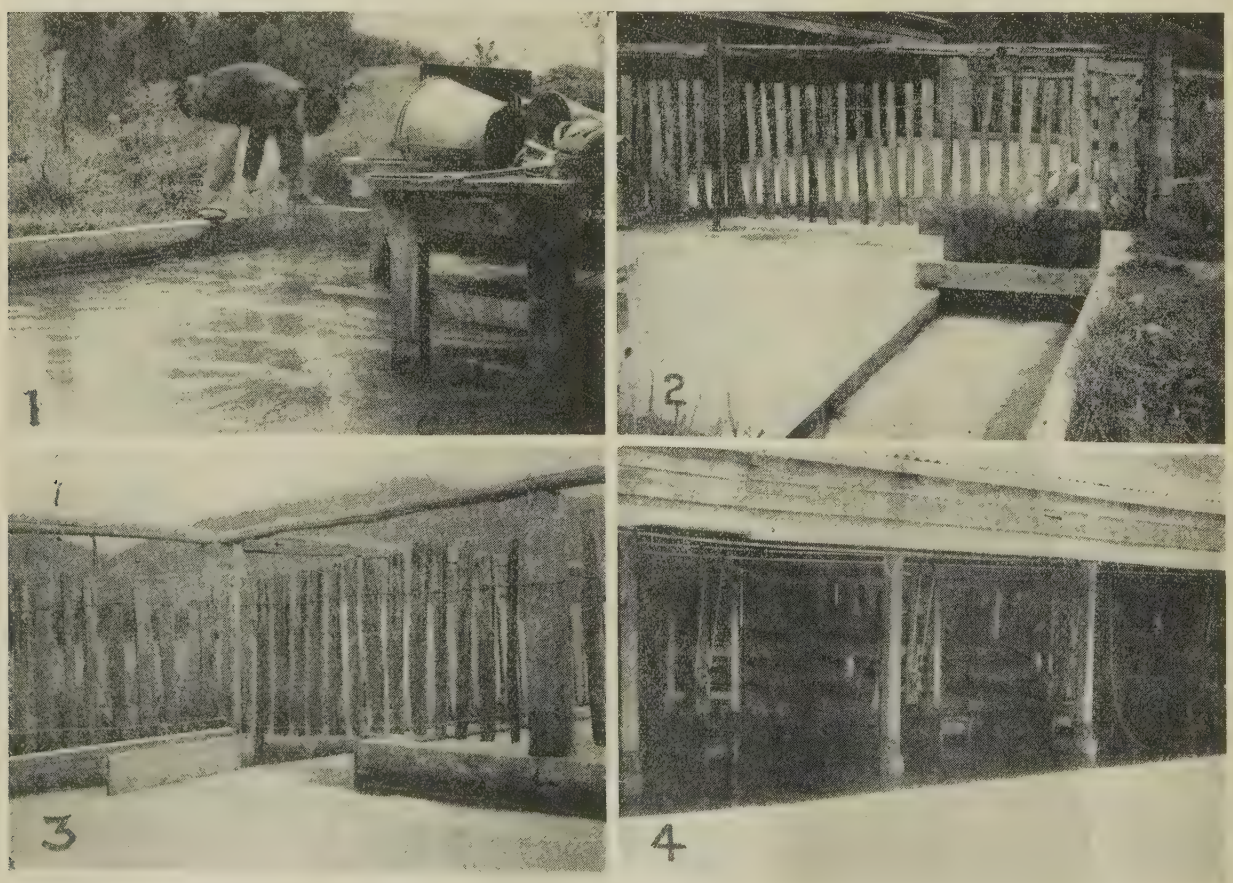
By
D. M. E. MERRY,
Instructor in Agriculture,
Nelson.

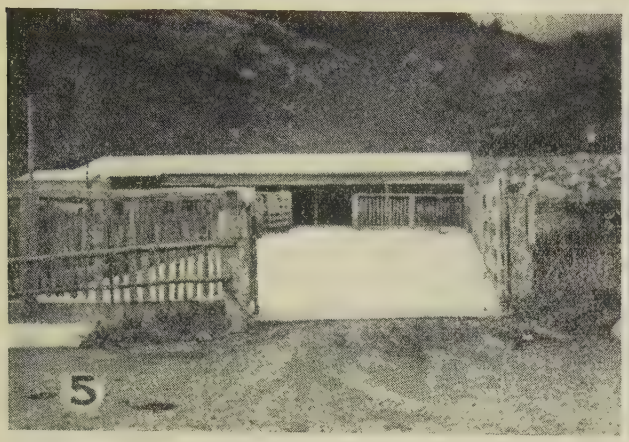
IN an article entitled "Power and Cleanliness from the Same Source," published in the "Journal" for December, 1938, Mr. N. Lamont, Instructor in Agriculture, Masterton, described how spring water had been used by a Kaitoke farmer both as a source of power to operate his milking plant and for cleansing the shed floor during milking.

A somewhat similar utilisation of water, although with the triple idea of generating electric power, shed cleansing, and cream cooling, has been developed on the property of Mr. L. Manson, Wainui Inlet, Takaka, Nelson. Mr. Manson has impounded a mountain stream in a gully near his milking shed, to which water is laid by race and pipe line for the generation of electric energy sufficient for farm and domestic needs. His shed is electrically powered, electrically lit, and provided with water electrically heated. Further, the outflow water from the generator turbine can be directed as required through the milking shed and yards to ensure thorough cleanliness at all times.

As may be seen from the illustration, the lowering of a slide (Fig. 1) directs the spent water from the turbine to the left, where it flows along a concrete channel-way. By dropping a second slide (Fig. 2) the inner yard, bail floor, and outer yards may all be flooded together, while, by allowing the water free passage at the last-named point, it is possible alternatively to inundate only the outer and larger of the two concrete floored yards. These yard floors have been constructed on a falling grade with the bails at the highest level, and a low concrete wall beneath a baton fence separates the inner from the outer yard. This has a channel-way at one corner (seen in Fig. 3) provided with a water gate to control the depth within the inner yard over which water flows to the outer yard. Fig. 4 shows the inner yard flooded before milking, with the water reaching nearly to the dummy bails, which is about working level.

Fig. 5 is a view of the outer main yard from the roadside, while Fig. 6





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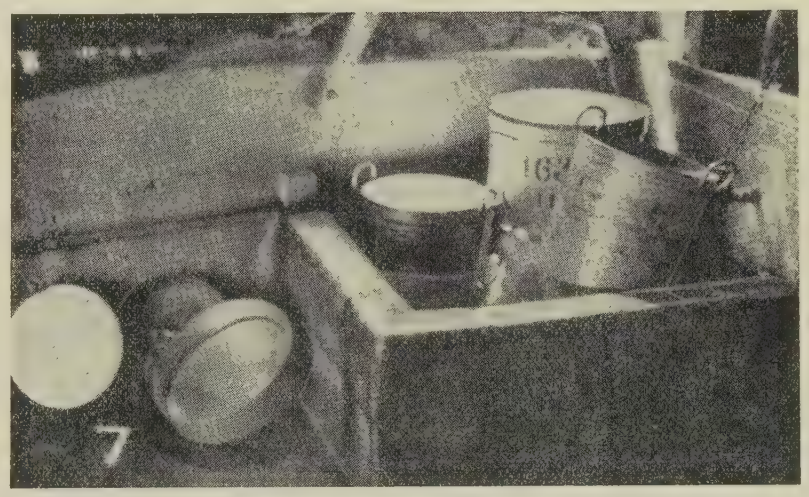
is the reverse view from the street entrance showing the concrete pathway leading down to the yard floor. On the extreme right of this illustration may be seen the final water discharge to a street drain, at which point a further slide is necessary to control the depth of water retained within this yard.

From the above short description it may be appreciated that the greatest depth of water in either yard lies near the main gateways, which is the lowest level. The maximum water depth attainable at the entrance to either yard is, of course, dependent on the height of the retaining walls. In these yards the concrete wall between the inner and outer yards has a height of 8½ in., and the outer yard 1 ft. at street entrance. In operation, only a few inches of water are required at the deepest point, and the remainder of the yard can then be left dry, while, following milking, the raising of the water level permits the easy flooding and cleansing of all floors.



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In addition to the cleaning the cows receive to their hoofs and legs as they enter the respective yards, provision is also made to flush the long concrete raceway leading from the bails to pasture. Fig. 7 is a photograph taken from within the separator room, and fittingly illustrates how cold, stream water circulating through a square concrete trough is used to chill the laden cream cans before collection.

Admittedly, in this novel lay-out Mr. Manson has fully utilised the benefits of an abundant water supply, besides, perhaps, approaching the hygienic ideal in dairy shed lay-out. One disadvantage, however, is apparent—valuable farm yard manure which otherwise might be reclaimed for pasture improvement, is forever lost from the farm.

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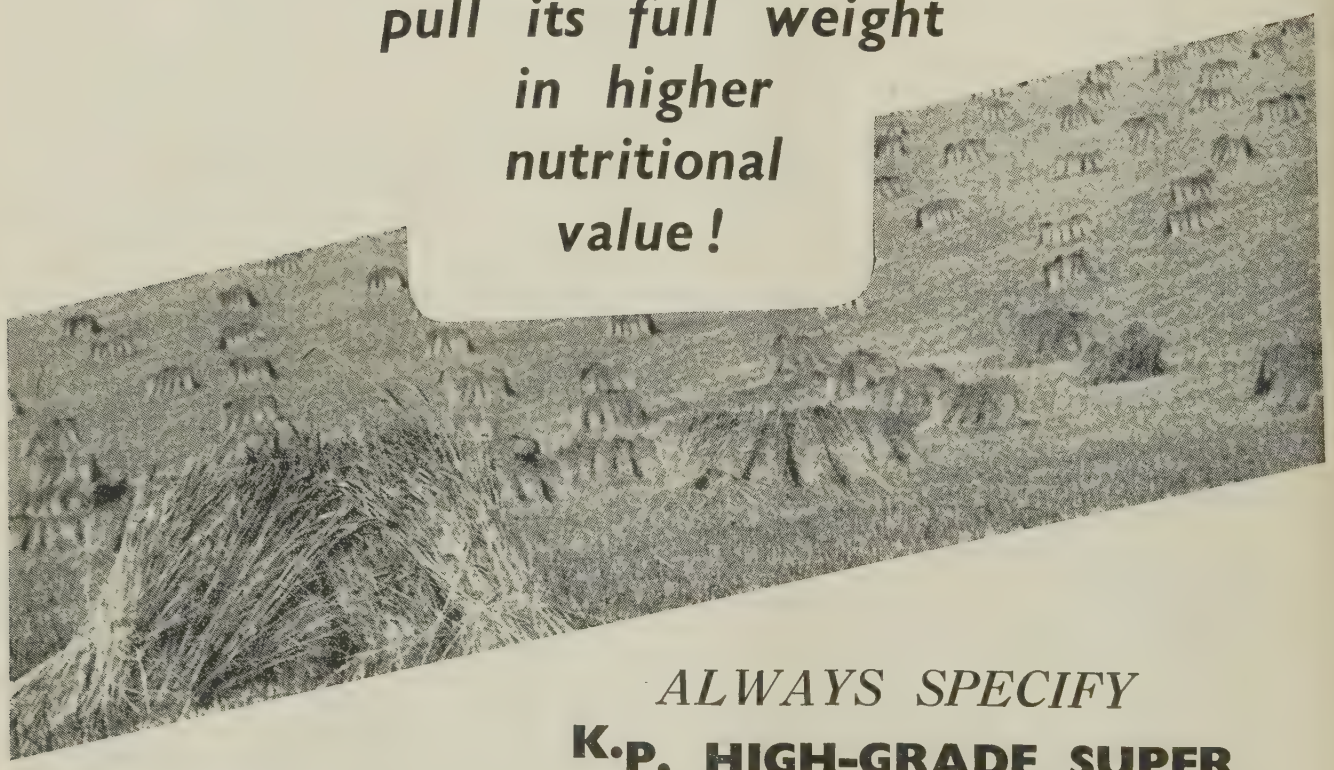

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Malting Barley

Increased Contract Prices For 1941-42 Season

AS a result of negotiations carried out by the Department of Agriculture between the representatives of the chief users of malting barley and barley growers, prices for stook threshed and stack threshed barley will be increased in all contract barley for the coming season. The increases agreed upon by the Barley Advisory Committee represent a rise on last year's prices of 3½d. per bushel for barley threshed from the stook, and 4½d. per bushel on barley threshed from the stack. Contracts for malting barley will operate on the basis of three prices for No. 1 grade malting barley, and in addition to a differential price existing between stook and stack threshed barley as hitherto, a new price for windrowed barley has been established.

The prices for the coming season are as follows:—

CANTERBURY AND MARLBOROUGH.

Old Prices:
- Stook threshed 4/7½ per bushel.
- Stack threshed 4/10½ per bushel.

New Prices 1941-42 Season:
- Windrowed 4/7½ per bushel.
- Stook threshed 4/11 per bushel.
- Stack threshed 5/3 per bushel.

Canterbury prices f.o.b. on trucks country stations.

Marlborough prices f.o.b. in store Blenheim.

SOUTHLAND.

Old Prices:
- Stook threshed 4/9 per bushel.
- Stack threshed 5/- per bushel.

New Prices:
- Windrowed 4/9 per bushel.
- Stook threshed 5/0½ per bushel.
- Stack threshed 5/4½ per bushel.

Prices f.o.b. on trucks country stations.

CENTRAL OTAGO.

Old Prices:
- Stook threshed 5/1½ per bushel.
- Stack threshed 5/4½ per bushel.

New Prices:
- Windrowed 5/1½ per bushel.
- Stook threshed 5/5 per bushel.
- Stack threshed 5/9 per bushel.

Prices f.o.b. on trucks country stations.

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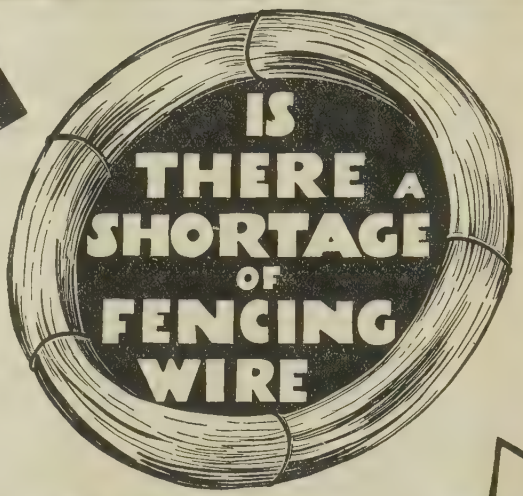
Because of the increased use of malting barley and the necessity of avoiding so far as possible the importation of barley, it is felt that the added monetary inducement offered to barley growers this season should encourage growers to sow an acreage sufficient to meet the Dominion's total requirements. The differential prices agreed upon are based on the desire to obtain the best possible barley for malting purposes, hence the increases given for stook and stack threshed barley.

It is felt that, with the enhanced contract malting barley prices for season 1941-42, barley growers will enter into contracts with maltsters, and that sufficient barley will be grown during the coming season to obviate the necessity for overseas importations.

FARMERS



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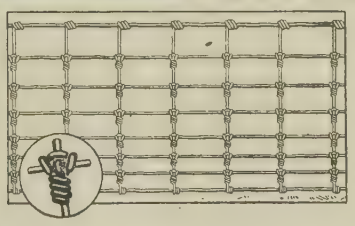

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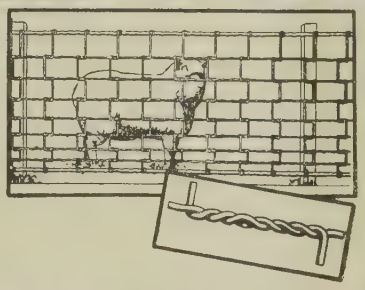

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Veterinary Notes for the Farmer

Discussions on First-Aid Measures

Contributed by the Livestock Division

Coughing in Animals (Cattle)

(*Continued from the May issue.*)

IT has been already pointed out that it is not wise to generalise so far as the different classes of animals are concerned. Even with cattle, the symptoms of coughing may have a totally different meaning, depending upon whether the cough is present in a calf or in an adult, as in a dairy cow.

The symptom of coughing in calves a few months old is almost always characteristic of the condition known under various names, such as husk or hoose, or lungworm disease. In calves the coughing gradually becomes more marked towards the end of summer and during the autumn and early winter months. At this season, especially if the calves have been grazing on low-lying pastures or the season is a rainy one, many calves will begin to cough. At first, the cough is heard only occasionally, most frequently after some forced exercise, but later the animal will be heard coughing almost continuously. The coughing is due to the irritation set up by the many small, thread-like worms which lodge in the smaller bronchial tubes of both lungs. Many hundreds of the worms may be found in the tubes at a post-mortem examination. Coughing in this instance is Nature's attempt to dislodge the worms and remove the cause of the irritation. The species of worm responsible is specific for cattle only. A different species attacks sheep, and still another attacks pigs, but in a rather similar manner, also setting up a cough in these animals.

Characteristic Cough

The cough produced by the worms in affected calves is said to be a characteristic one. The head is poked out, and during coughing the tongue is commonly protruding from the mouth. The cough is prolonged, and has been described as a soft cough, a harder type of cough being produced from any throat irritation.

Although many well-fed calves frequently overcome this worm trouble through a change of pasture and some supplementary feeding, there is a danger of mortality in an animal not so well looked after. The small tubules become blocked with the worms and surrounding mucus, some worms migrate and become embedded in the lung tissue, and a type of broncho-pneumonia is set up. In a weak and debilitated animal the pneumonia eventually proves fatal. Furthermore, calves affected with lungworm are usually heavily infested with stomach and intestinal worms, and the animals' strength is undermined from both of these centres.

Affected animals are stunted, pot-bellied, have harsh coats, and in addition to coughing may be affected with scouring as a result of the irritation from the worms in the stomach and intestines. The term stomach cough has been used in describing some affections in animals, but the writer does not know how the term originated, unless it refers to some reflex action

PULPY KIDNEY VACCINE

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Orders for entero-toxaemia vaccine, made at the Commonwealth Serum Laboratories, Parkville, Victoria, are now being filled by the Animal Research Station, Wallaceville, where stocks are held for New Zealand requirements.

Farmers who are considering the vaccination of their ewes this season are requested to write at once for particulars and prices, if their order has not already been placed or put in hand. Mention the number of ewes to be vaccinated, and also the date lambing will commence.

Particulars and order forms are obtainable from any Inspector of Stock, the Department of Agriculture, or from the Superintendent, Animal Research Station, Private Bag to Wallaceville, Wellington.

produced by irritation of the stomach wall such as might be caused through worms in the stomach.

Treatment Not Always Easy

The treatment of husk or lungworm in calves is not always easy, especially in badly infested calves in poor condition. Many and varied treatments have been tried from time to time, including fumigation, drenches of various types, injections into the windpipe, and medicaments to be inhaled. As in many other diseases, the curative treatment is not always spectacular; it is always advisable to deal with affected animals from several angles. In the first place, the animals' strength must be maintained, and any loss of condition must be built up. Good feeding is therefore the first essential. The affected animals must be prevented from picking up more worms from the pastures and watering places, and a change of pasture to a dry, well-drained area is essential. Supplementary feeding on ensilage, hay, or even crushed oats and linseed may be necessary for very weak animals. Drenching with any of the recognised worm medicines should be resorted to to reduce the worms in the alimentary canal. It is not likely that any drench given by the mouth will have any effect on the small worms in the lung tubes, but the removal of the alimentary worms will enable the animal to build up and put up a better fight against the lung worms.

Many young calves are seriously affected with worms in nearly every intensive dairying district. Unless the calves are well fed and well cared for to keep the trouble in check, the serious setback in affected calves will greatly affect the young heifers calving down at two years of age. Heifer calves which have been well wintered during the first winter provide constitution in the foundation stock in the herd for all time, while the animals remain in production. It is hardly necessary to stress to all owners producing young animals for replacement purposes the importance of doing their utmost to ensure that healthy, robust, well developed yearlings are seen on every farm.

Tuberculosis

Young stock with well-developed, sound lungs are less liable to other diseases of the lungs in later years. The most common cause of a cough in older animals is probably infection of the lungs with tuberculosis. The type of cough in this case largely depends upon the extent of the disease as it may affect the lungs of cattle. Any impairment of the normal, healthy lungs is more marked after some forced exercise, and this practice is frequently resorted to in order to decide the possible existence of tuberculosis in an animal. The significance of coughing in an adult animal, a dairy cow for instance, must be viewed seriously because of the possible existence of tuberculosis. The risk of a spread of the disease in a herd through an animal continually coughing up infected matter is serious on certain low-lying, heavy carrying capacity farms.

Apart from tuberculosis, the adult animal may cough following a heavy infestation of the lungs with hydatid cysts. Coughing may also result from an attack of pleurisy or pneumonia in an animal, whether either of these is due to tuberculosis or to some other cause. Coughing may be set up in an animal after drenching if the drench contains an irritant such as turpentine. Some of the drench may enter the windpipe during drenching operations, and a temporary cough may result. Extra care is necessary when attempting to drench an animal affected with a cough. This is one of the reasons why it is not advisable to drench an animal affected with pleurisy or pneumonia. A short, dry cough may be seen in animals fed on dusty hay or chaff. In all cases of coughing the diagnosis as to the nature of the diseased condition causing the coughing must be based on the history of the animal, its general appearance and condition, its age, all other relevant facts having a bearing on the various matters already discussed.

Pneumonia

Pleurisy and pneumonia are not a common cause of coughing in cows under our open-air dairying system unless either is due to some specific infection, such as tuberculosis, or follows upon some other diseased condition and results from bad drenching, such as may occur following the drenching of an animal affected with milk-fever. Many cases of fatal pneumonia have resulted from drenching cows affected with milk-fever, some of the drench passing to the lungs through the animal being unable to swallow at certain stages of the trouble. In pneumonia,

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however, the breathing and temperature are probably of much more significance than the evidence of coughing.

Coughing is occasionally seen in cows affected with nasal catarrh, in which case the irritation causing the catarrh has extended from the nasal chambers to the larynx or trachea. However, in this case, more importance is attached to the peculiar nasal breathing and snoring sound than to the cough.

(To be continued.)

Simple Device for Rearing Motherless Lambs

The simple gadget shown in the above photograph is used on Mr. Burgess' sheep farm, Puketapu, Hawke's Bay. It is easily made from suitable sized wooden boxes, with supports to hold them at the right height and angle, and considerably lessens the time and trouble required to rear motherless lambs.

—A. D. M. G. LAING, Veterinarian, Hastings.

Answers to Correspondents

Disinfectant for Washing Cows' Teats.

G.T.W. (PUNIHO):—

Can you tell me whether using any kind of disinfectant in the water with which I wash my cows' teats is any use as a preventative against mammitis? My second question is: What is the maximum distance a dairy cow will walk for water? Some of my troughs are between a fence, one through watering two paddocks. I have recently put a trough in the centre of some of my paddocks, so that the cows only have five chains to walk instead of 12. Most farmers here say I am only wasting money.

LIVESTOCK DIVISION:—

It is believed that the use of a suitable disinfectant in water for washing cows' teats is of value in preventing spread of mammitis infection. The most effective are those of the hypochlorite series. Because of some risk of contamination of the milk they are not entirely approved of by the Dairy Division, but this objection is overcome by drying the udder properly. Permanganate of potash (Condys') can also be used in solution. It requires frequent changes of water, the solution soon losing strength.

No disinfectant can be relied on to keep the water fit to wash many cows, as changes are necessary. It would be better both from the point of view of clean milk production and mammitis control to use ordinary water and soap with a fresh lot for each cow and proper drying than to rely on one bucketful of disinfectant solution to serve a considerable number. A more effective use of the disinfectant solution is to apply a little to teats, particularly the points, **after** milking, and leave it.

It is well proved that improving the access of the herd to drinking water will help milk production. This has been shown with housed cows when water was laid on in the bails. There may be no maximum limit to the distance a cow would travel to drink, but there is certainly a limit to the number of times in the day she would cover it, and the handier the drinking the oftener will she visit it, especially in hot weather.

Advisory Service on Veterinary Matters.

Farmers are invited to submit inquiries connected with the health of their stock, and the replies will be published under this heading.

Lameness in a Cow

H.L.B. (NAUMAI):—

(1) This season one of my cows after calving seemed quite normal. After a few days she took sick, seemed too weak across the loins, and partly dragged her hind quarters. Her udder also became very hard. After a long time of treatment she became much better. Her udder came back to normal, and is still milking fairly well despite this big check, but she does not walk normally. Her hocks are very much enlarged, and to the touch seem spongy and as if there might be a fluid there. Could you please advise what this cow is affected with and if you consider she would have a recurrence of the trouble next season? She is in good condition.

(2) I have another cow which, after calving early in the season, started to

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lose condition. She milked quite well, was quite bright, chewed her cud, continued to be one of the herd bosses, and even today, although she is only skin and bone, she still has the above habits. She is getting thinner every day. I have tried all sorts of things on her—linseed oil, plenty lick salt, limonite—but all without avail. On account of her habits I do not think she has T.B. Will you please give me your opinion on these two problems?

LIVESTOCK DIVISION:—

The abnormal gait shown by your cow may be due either to (1) an injury to the back as a result of falling or slipping; (2) an injury at calving time to the nerves supplying the hind legs, the injury not being severe enough to cause complete paralysis as is seen in some cows after calving.

In No. (1) a recurrence is not likely. In No. (2), however, it would depend on the size of the calf and the ease or difficulty experienced at calving time.

As regards your second query, in the absence of other symptoms an examination would be necessary before an opinion could be given. It would be advisable to have the cow examined by the Inspector of Stock for your district and, if necessary, have the T.B. test applied.

Injury to Horse

C.E.S. (OMANAWA FALLS):—

I have a young four-year-old gelding working horse badly affected with a complaint which I would like advice on. Broken in at two-year-old, well handled and cared for on my place and hard fed, he was in the most perfect health and condition that one could wish for. After finishing my work I loaned him to a neighbour ploughing, farrowing, and haycutting, and when I visited his place I found the horse almost unable to stand up. He was standing with fore legs and hind legs stretched out, and had a bad tendency to fall backwards and sideways. He has been in this condition now for six months. He still has a tendency to fall over if disturbed suddenly. He has a job to lie down and a worse one to get up. There also appears to be a bad weakness in the loins. The bowels are free, and the urine is good. The eye is bright, and the coat and general condition are otherwise good. The neighbour assures me that there was no accident. Can you suggest anything to have caused this condition?

LIVESTOCK DIVISION:—

It is rather difficult to diagnose the disability affecting your horse without an actual examination of the animal. At the same time, the symptoms described by you suggest an injury to the back. Such an injury may have been brought about by strain of muscles or ligaments affecting the spine, probably in the region of the loins. It is possible that any injury in the region of the spine would leave permanent after-effects such as described in your letter. The symptoms suggest that a fusion of some of the small bones or joints of the spine has taken place. It is highly improbable that any marked improvement will now take place, owing to the fact that the symptoms have been present for six months.

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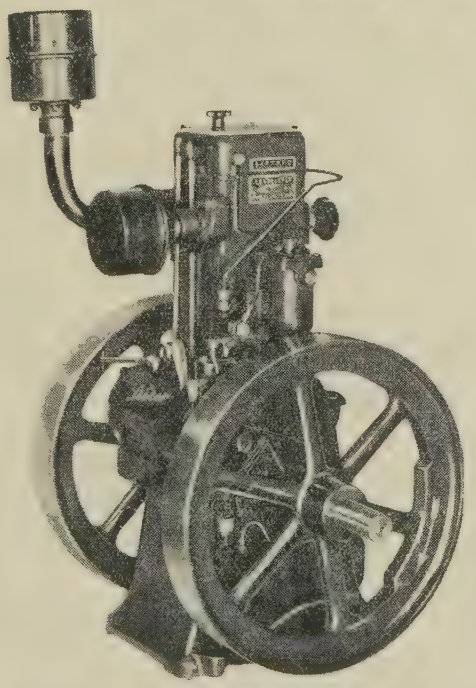

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Farm Practice and Management

Contributed by Officers of the Fields Division

Fields Superintendent Appointed To Christchurch

MR. R. P. CONNELL, Land Utilisation Officer, Department of Agriculture, has been appointed Fields Superintendent, Christchurch, to replace Mr. R. McGillivray, who has retired. Mr. Connell, who has a wide experience of farming, was Instructor in Agriculture at Palmerston North for a number of years, and was appointed Land Utilisation Officer about four years ago.

Mr. R. P. Connell was a scholarship holder at and dux of the Waimate High School. Later, he kept terms at Canterbury College for one year, and then studied at Otago University, where he graduated after gaining the McGregor Prize and four first-class passes in various courses. Subsequently, in Canterbury, Auckland, Otago, and Wellington provinces he carried out instructional or investigational work in agriculture.

MR. R. P. CONNELL.

With Mr. J. W. Hadfield, of the Agronomy Division, he is joint author of "Agriculture in New Zealand," of which the fifth edition was published a short time ago.

He has been the secretary of the New Zealand Grasslands Association since its establishment, and in 1931, from a strong field of technical workers, was the winner of the Blewett Essay Competition, the subject being the advancement of grass farming in New Zealand.

During recent years he has been associated more particularly with rural economy and farm management. He was in charge of the land utilisation survey covering the provinces of Hawke's Bay, and a member of the technical committee which two years ago reported on land conservation problems in the Dominion. He is a member of the committee responsible for the development policy on Moutoa Estate, where 4,500 acres of flax, *Phormium tenax*, is to be grown for the wool-pack requirements of the Dominion.

In 1939 he was a member of the specialist secretariat attached to the Royal Commission which investigated the sheep industry, and last year he was on the technical secretariat of the Economic Stabilisation Conference. Since the outbreak of war he has been Organiser of Farm Production to the National Council of Primary Production.

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Renovation of Rush Infested Country

— By —
C. WALKER,
Instructor in Agriculture,
Thames.

Fig. 1 (top). — Rush infestation of a badly poached field on Mr. E. J. Shepherd's farm, Kerepeehi.

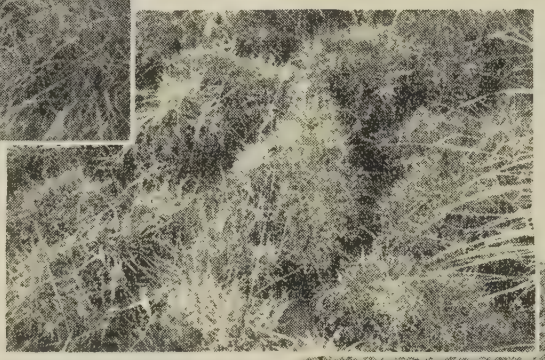

Fig. 2 (above). — An average section of the poached field between rush clumps.

Fig. 3 (right).—Three double cuts on Fig. 1 have produced this tilth. Rushes have been completely cut, and the area is ready for cropping.

REPEATED poaching of the marine silts on the Hauraki Plains leads to infestation firstly by pennyroyal, buttercup, creeping bent, and glyceria, and finally by profuse growth of rushes as shown in Figure 1. Normally, this would need to be spaded out, but at the present time labour for such work is almost unprocurable at a reasonable price.

In the case of the area depicted in these illustrations, the manager, Mr. E. F. Shepherd, was unable to obtain a lower contract figure than £6 per acre for chipping rushes alone. Consequently, he decided to do the work with tractor and heavy discs.

One double cut was given last December and two further double cuts in March. Figure 2 illustrates what the country was like between rush clumps, while Figure 3 shows how successful Mr. Shepherd has been in getting a seed bed with no aid other than the discs. Rushes have been completely chopped up, and the area is in fit condition for a crop of oats, which Mr. Shepherd intends to sow to aid in smothering any regrowth of rush.

At the present time his intentions are to crop for two seasons and then sow to pasture, after which winter rolling will be the main means of overcoming poaching. Mr. Shepherd is a keen advocate of winter rolling, especially since it has been of such assistance to him in improving his pastures and in maintaining an even surface for the handling of implements. As this treatment for rush infestation is a departure from the usual practice, a further note on the measure of success obtained will be published in the "Journal" at a later date.

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RANGITIKEI STREET, PALMERSTON NORTH.

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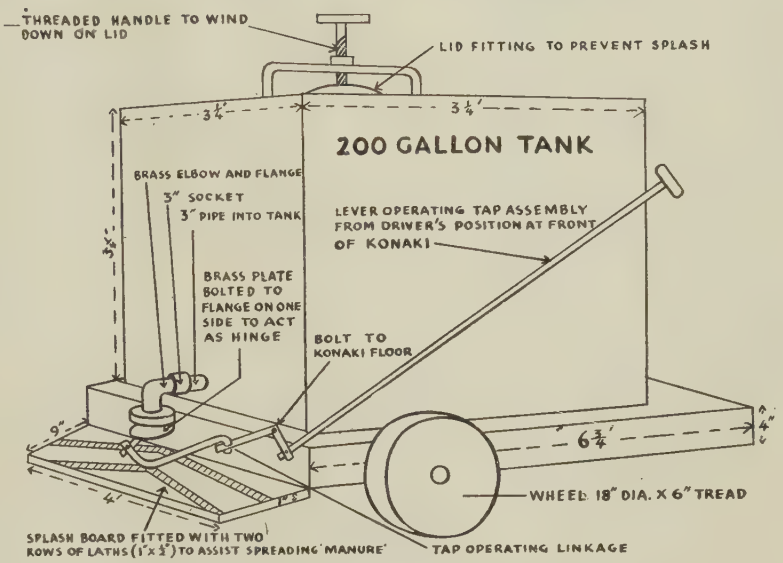
Construction of Liquid Manure Distributor

A CORRESPONDENT, a Bay of Plenty farmer, asks for a description of a type of liquid manure distributor which can be filled directly from the drain as the dairy shed is cleaned. In reply, Mr. C. R. Taylor, Fields Instructor, Whakatane, writes:—

I am inclined to think that you could not do better than use the method so popular among Taranaki farmers—that is, the square iron or wooden tank mounted on a specially-constructed konaki. There are, of course, a number of modifications to this system that you might successfully employ, but all would be much more costly to make or purchase and not the least bit more efficient than the type referred to.

The konaki is constructed with a platform approximately 3 ft. longer than the tank to be used so that there is sufficient room in front to allow comfortable standing accommodation for the driver. The front end of the konaki should be furnished with the usual iron-shod skid, while the axle should be placed well to the rear to secure the necessary balance. Wheels should be from 18 in. to 24 in. in diameter with a 6 in. tread and supported on an axle of 2 in. diameter.


THREADED HANDLE TO WIND DOWN ON LID
LID FITTING TO PREVENT SPLASH
200 GALLON TANK
BRASS ELBOW AND FLANGE
3" SOCKET
3" PIPE INTO TANK
LEVER OPERATING TAP ASSEMBLY FROM DRIVER'S POSITION AT FRONT OF KONAKI
BRASS PLATE BOLTED TO FLANGE ON ONE SIDE TO ACT AS HINGE
BOLT TO KONAKI FLOOR
WHEEL 18" DIA. X 6" TREAD
SPLASH BOARD FITTED WITH TWO ROWS OF LATHS (1"x½") TO ASSIST SPREADING MANURE
TAP OPERATING LINKAGE

Constructional details of a liquid manure distributor.

Where the distributor is to be drawn by horses the tank should not exceed a capacity of 200 gallons because of the weight involved, which is well over one ton when fully loaded. For preference, the tank, which can be made of either galvanised iron or wood, should be of the square type so as to reduce as far as possible the surge that takes place while the distributor is being driven along. Tank fittings should consist of a lid fitting close enough to prevent excessive splashing, and a tap of between 2½ in. and 3 in. diameter, the latter being preferred. If an old tap from a cheese vat can be procured, this is very suitable; otherwise, a brass fitting should be purchased, as iron taps soon rust and leak. The accompanying diagram illustrates a serviceable type of tap assembly together with the necessary control fittings. Construction details of the konaki are also shown.

It will be noted in the diagram that the brass flange piece and plate, which are lightly bolted together at one end of flange only, actually form the tap, and this is operated from the front of the konaki by movement of the lever through the linkage provided. The splash or spreader board, which should not be more than 4 ft. or 5 ft. long, is made from 9 in. x 1 in. timber, and is placed about 3 in. below the tap and from 6 in. to 9 in. from the ground. Slats 1 in. x ½ in., as shown, are fixed to the board to assist in spreading the liquid manure evenly. The tank is held in position on the konaki by

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pieces of angle iron bolted to the floor at the corners of the container. To prevent splashing from the top of the tank, a simple arrangement is provided which is self-explanatory.

The manure distributor described is large enough for a shed milking 100 cows when emptying is contemplated daily, as in your case. This provides for 2 gallons of washings per day per cow. The drain from the shed to the tank should be wide and flat so that it may be swept down with a broom. It is also essential that provision be made to divert rain water from the tank when necessary. At all times avoid over-dilution of the manure by using just that amount of water necessary to maintain thorough shed cleanliness.

—C. R. TAYLOR, Fields Instructor, Whakatane.

Te Puke Farmer's Experience In Renovating Sod-bound Paspalum Pastures

MUCH has been written during the past few years on the management of paspalum pastures. A farmer on the silty-peat swamp district near Te Puke has had an interesting experience with paspalum over the past two years, and his experience may be well worth handing on to those farmers whose pastures are dominantly of this grass.

The season 1937-1938 saw this farmer's pastures with an abundance of strongly growing paspalum. He did not control the growth in any way, and at the end of the autumn the paddocks were fence high with rank growth. Then several floods came and flattened out the grass, which eventually rotted. The following season there was little or no growth on any of the pastures. The ryegrass and clovers had gone, and the paspalum was sod-bound and stunted. Off the farm of 150 acres the farmer obtained one small stack of hay and a pit of ensilage. His production dropped from 26.000 lb. butterfat to 16,000 lb.

In the following autumn he disced a few paddocks thoroughly and sowed the following seed mixture with a dressing of 3 cwt. of superphosphate per acre:—15 lb. certified perennial ryegrass, 2 lb. certified white clover. He spelled these paddocks during the winter, and in the following spring there was an abundance of ryegrass and clover. So pleased was he with the results that he treated several more paddocks in the spring, with quite fair success, and he now has good ryegrass-paspalum-white clover paddocks wherever renovation has been done. Last season he saved ample hay and silage, and this year these paddocks are just as good.

He also attempted to introduce timothy and meadow foxtail by this method, but without success. By the end of this coming autumn he hopes to have completed the renovation of all his pastures. Results obtained on this farm indicate that renovation gives better results if done in the early autumn rather than in the spring. So striking have been the results on this farm that several neighbouring farmers have adopted a similar policy with equal success.

—A. V. ALLO, Instructor in Agriculture, Tauranga.

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Do Your Fences Require Attention?

STOCK-PROOF fences are of prime importance for the efficient management of any farm unit. He who neglects to pay adequate attention to his fences is only courting trouble, for not only is the time and expenditure greater when repairs are finally carried out, but valuable time is also lost, and tempers become frayed in returning stock to their proper field after they have wandered through a fence to some other field.

The illustration shows a fence of a bull paddock in a sad state of disrepair. It is well known that for bulls, more so than for any other class of stock, fences must be of the first order. A fence such as that depicted is practically useless, for any effort on the part of the bull to break through must surely be crowned with success.

At this time of the year, when shed work is falling off, the repair of fences is a farm operation which should command the attention of farmers.

In the fence shown, 15 minutes' work with the wire strainer, hammer, and staples would soon restore it to a state where it could be reasonably expected to withhold the stock.

—J. G. RICHARDS, Instructor in Agriculture, Hamilton.

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A Cheap Automatic Float

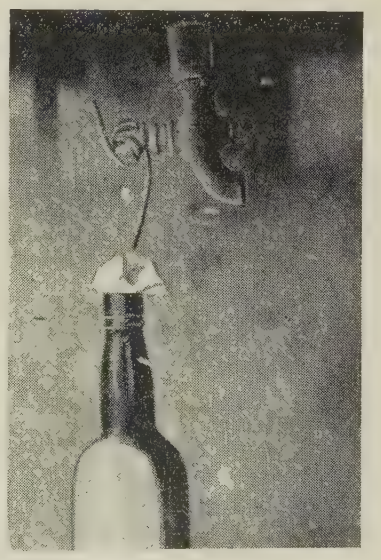
INTENSIVE farm subdivision necessitates a large number of water troughs, and with copper becoming increasingly scarce through wartime needs, a cheap alternative to the ordinary automatic copper float may prove of interest to many farmers.

As shown in the illustration, which represents a bird's-eye view of the trough, a cheap low-pressure tap of the common domestic pattern is screwed into the pipe under water in a horizontal position. The usual copper float is replaced by a bottle, which is connected to the tap by a piece of strong wire inserted into the stopper. With the low-pressure type of tap, a rise or fall of the float arm through about 40 degrees is sufficient to control the flow from full bore to stop.

The device shown has now been used for some time by Mr. L. J. Hutchison, of Port Albert, to provide water in the cow bails. It has proved perfectly efficient, and has given no trouble whatever. Even if intended only for temporary use, it costs practically nothing and is simple to install.

Whatever the future of copper in New Zealand, there fortunately appears to be no immediate prospect of a shortage of bottles.

—P. S. SYME, Instructor in Agriculture, Warkworth.



A birds-eye view of the trough, looking into the water. The white part on body of bottle is projecting above the water. Note how the wire is hitched around the key of the tap.

The Orchard and Vineyard

Contributed by the Horticulture Division

Orchard Notes

Prune Your Trees With Intelligence

PRUNING is the principal work to receive attention during the next few months, and, as previously stated, this work should be pushed forward and completed as early as possible. It is not sufficient to prune a tree merely because it is the pruning season or because it is the custom of nearly every fruitgrower to prune his trees. Pruning is a necessary and scientific work, but its benefits apply mainly according to the amount of intelligence exercised when the work is being performed. Pruning is an important factor in the future welfare of the orchard. Fruit trees should be pruned according to their age and the amount of growth they have made relative to their capacity for fruit bearing.

One of the principal points to remember in pruning young trees is to make provision for a strong foundation, for upon this depends the future of the tree and the production of heavy crops. It is necessary to have a clear understanding of the relative value of the different portions of the tree and the class of wood most suitable for fruit bearing; otherwise, much harm may be done and trees established which are unevenly balanced. By cutting too severely, a dense, overcrowded tree may be obtained, while possibly by pruning too lightly a young tree may be inclined to overcrop and thereby become a stunted and otherwise poor tree. A brief general outline of a few of the principal characteristics may serve a useful purpose.

Principal Characteristics

Apple and pear trees bear the fruit mainly on spurs that have been produced on wood two years old or more. There are, however, some exceptions where apples are produced on the previous season's growth, such as is sometimes seen on the varieties Granny Smith, Jonathan, Willie Sharp, and other varieties, such as Rome Beauty, Irish Peach, Frimley Beauty, which bear fruit on the terminal buds of the lateral growth.

Fig. 1.—Left: An accumulation of fruit buds and spurs. Right: The same branch after pruning.

Some varieties, as the trees become older, produce a very large number of fruit spurs, which, if allowed to remain, will eventually be the means of producing a large quantity of small and inferior fruit.

Fig. 1 illustrates an accumulation of fruit spurs on an apple branch and the same branch after being heavily thinned. By thinning out the fruit spurs in this manner ,the size and quality of the fruit will be greatly improved. There is nothing more exhausting to the trees than the production of an overwhelming crop of blossoms. Should a heavy crop set, the size of the fruit will be small, but it is possible that the strain upon the tree to produce such an abundance of blossoms has been so great that only a light crop will set.

On peach and nectarine trees the fruit is produced on young wood of the previous season's growth. The young lateral growth produces two kinds of buds—single and triple. The single plump ones are flower buds and will produce fruit, while the two outer ones of the triple buds are also flower buds, and the central one is the leaf or wood bud.

Points in Pruning

The main points to remember when pruning peach and nectarine trees are:—

(a) Space the leaders well—do not overcrowd.

(b) Cut out all exhausted and dead wood.

(c) Space all lateral growth in such a manner as to enable the tree to make a reasonable amount of fresh lateral growth for the following year.

(d) Do not shorten the laterals left for fruit bearing except when absolutely necessary.

It is only by following a few simple rules that reasonably good average crops can be obtained.

English plum trees require careful pruning; otherwise they may produce a large quantity of wood and small crops of fruit. The fruit is mostly produced on spurs formed on laterals two years old or more.

Fig. 2 shows an English plum tree five years old before pruning, and Fig. 3 shows the same tree after pruning. Note how the leaders have been reasonably well spaced, while the laterals have been thinned out and the leaders lightly topped. The laterals, being left in this manner almost the full length, will develop a good fruiting habit, which is desirable.

Japanese plum trees are much simpler to prune, as they bear fruit on spurs produced on the older wood as well as on spurs developed on the past season's growth. They require more severe pruning than the English plums. The same principle of general thinning of leaders and laterals is required, and in addition, both the leaders and the laterals should be shortened at least half way.

All experienced fruitgrowers are aware that there is no rule-of-thumb method of pruning fruit trees. The same fundamental principles apply the world over, but it is necessary to vary the system according to local conditions, of which the main points are climate, soil, variety and type of tree.

Fig. 2.—A five-year-old English plum tree.

Fig. 3.—The same tree after pruning, showing well-spaced leaders and fruiting laterals.

Seasonal Work

Other seasonal work to be undertaken will be digging around the trees where necessary. Where modern implements are used, however, very little hand work remains to be done.

As the fruit harvesting period is finished, any wet days can be utilised as follows:—

(1) Clean up the packing shed and destroy all refuse of any kind that may have accumulated. A tidy packing shed creates a good impression.

(2) Repair any broken picking boxes and stack them away for use in the following season.

(3) Examine spraying records, and make plans and preparations for the next spraying season.

Remember that all work becomes very much easier if planning is done well in advance and the work is kept well up to time-table. Methodical working is very much easier than haphazard methods, and generally more profitable.

—L. PAYNTER, District Supervisor, Auckland.

Citrus Notes

Grading and Packing Citrus Fruits

BY June, citrus growers will be approaching the main harvesting season of the year for most citrus fruits. Lemon pickings reach their maximum during the next three months. Poorman oranges will be harvested for marmalade purposes during June and July and as New Zealand grapefruit during August to October, and most sweet orange varieties during a similar period.

As this is the first season since the gazetting of the New Zealand-grown Fruit Regulations, 1940, special reference will be made to these regulations as they affect the grading and packing of citrus fruits. For the purpose of the regulations citrus fruit means lemons, oranges, mandarins, grapefruit, and New Zealand grapefruit.

As lemons are all being handled by the Internal Marketing Division and packed in a three-quarter-bushel case, they need not be considered further. For all other citrus fruits, including Meyer lemons which are not being handled by the Internal Marketing Division, the standard cases are:—No. 1: Bushel 10½ in. x 11½ in. x 18 in.; No. 5: 8½ in. x 7 in. x 18 in.; and No. 7: 6 in. x 9 in. x 11 in.

Branding

The compulsory branding required on the end of citrue fruit cases is as follows:—

Bottom left-hand corner: Registered mark or number.

Bottom right-hand corner: Count and grade for oranges, grapefruit, New Zealand grapefruit, and Meyer lemons.

"Cured" or "Not cured" and variety in the case of lemons of the Meyer variety, and the word "Lemons."

Oranges, mandarins, grapefruit, or New Zealand grapefruit, dessert or marmalade.

In addition, on the same end of the case may be branded "Name and Address" at the bottom left-hand corner

under the registered mark, and a shipping or forwarding mark in centre of the end of case. All these details shall be branded in decipherable characters of not less than 3-8 inches block type, except "Name and Address," which shall be in decipherable characters of not less than 1-8 inch block type.

It should be noted that no inspection fee stamp is necessary except in the case of the "Meyer" lemons, when 1d. per case is necessary for the bushel case and ½d. per case for either of the other two cases permitted.

When any of the above citrus fruits are being despatched as a gift, then the words "gift fruit" must be clearly marked on the case.

If any citrus fruit is being sold direct to a factory or to a packing establishment, the only compulsory brand required on the end of the case is the registered mark of the owner. Lemon growers supplying the Internal Marketing Division's depots are reminded of this fact.

Grading Poorman Oranges

The crop of Poorman oranges or New Zealand grapefruit will be the principal crop affected by the regulations. Before the gazetting of these regulations there was no uniformity among growers regarding the use of the terms Porman orange or New Zealand grapefruit. Packages should now be branded New Zealand grapefruit, but a clear distinction is made between fruit for marmalade purposes or for dessert purposes. The distinction between the two depends upon the maturity; dessert fruit must be ripened on the tree and be of good edible quality and flavour, whereas marmalade fruit must be coloured on the tree, thus being of a uniform maturity and uniform colour.

It is suggested that until the end of July packages containing all such grapefruit should be branded as "Marmalade New Zealand Grapefruit."

The grades for marmalade New Zealand grapefruit are Extra Fancy, Fancy, and Commercial. Fruits of more than one grade may be packed together provided not more than 20 per cent. of a higher grade than the grade mark on the package is included and no fruit of a lower grade.

Reminders for June

Apply 3-4-50 Bordeaux for control of citrus brown-rot if not already done.

Prepare for planting of citrus and shelter trees.

Check over existing citrus and shelter trees and order replacements.

Harvest marmalade New Zealand grapefruit when fully coloured.

Harvest all coloured lemons.

Harvest light green or silver lemons 2¼ inches in diameter and over.

A well packed case of New Zealand grapefruit.

Main Differences

The main differences between these three grades are:—

Extra Fancy.—Counts up to 198 to the bushel—slight blemish 5 per cent.

Fancy.—Counts up to 234 to the bushel—slight blemish 10 per cent. hail ½ in., russeting 15 per cent.

Commercial.—Counts up to 234 to the bushel minimum size 2¼ in.—more blemish than Fancy.

The main differences between marmalade, New Zealand grapefruit and dessert New Zealand grapefruit are:—

(1) Marmalade Extra Fancy counts up to 198; dessert, 234.

(2) Marmalade: Uniform in maturity and uniform in colour. Dessert: As above but good colour and of a good edible quality and flavour.

(3) Marmalade: Juice content 25 per cent. by volume; dessert, 30 per cent.

(4) Dessert grapefruit cannot include fruit deficient in juice or immature fruit.

The wrapping of marmalade New Zealand grapefruit or dessert New Zealand grapefruit is not required, but is recommended for dessert fruit if such is being transported a considerable distance.

The following is a packing chart designed for the standard bushel case 10½ in. x 11½ in. x 18 in., packed the wide way:—

Style Crosswise.	Number of Rows Lengthwise.	Number of Layers.	Count.	Size (inches).	Wrapping Paper.
2—2	3—3	5	60	3⅞	11 x 11
2—2	4—3	5	70	3¾	,,
2—2	4—4	5	80	3⅝	,,
2—2	5—4	5	90	3½	,,
2—2	5—5	5	100	3⅜	10 x 10
2—2	6—5	5	110	3¼	,,
3—2	4—4	6	120	3⅛	,,
3—2	5—4	6	135	3	,,
3—2	5—5	6	150	2⅞	,,
3—2	6—5	6	165	2¾	9 x 9
3—3	6—6	6	180	2⅝	,,
3—3	7—6	6	195	2⅝	,,
3—3	5—5	7	210	2½	,,

—A. M. W. GREIG, Citriculturist, Auckland.

National Horticulture Week, 1942.

At a meeting of the Joint Permanent Committee representative of the Royal New Zealand Institute of Horticulture, New Zealand Horticultural Trades' Association and the Association of Directors of Parks and Reserves at Wellington recently, it was decided that National Horticultural Week, 1942, should be held in Hawke's Bay. It was also resolved, "That the deliberations at the conferences should be along national lines, and that it be a recommendation to the local committee to feature exhibits of national importance." It was also considered that the necessity and value of food production should be stressed.

Viticulture

Points in Making Cider

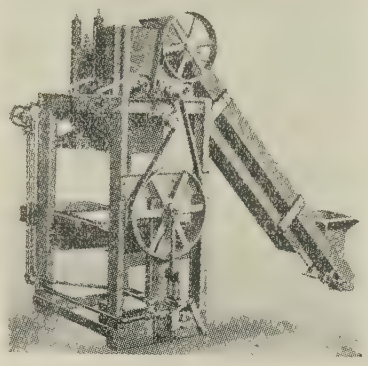
Method of Pasteurising

PASTEURISING cider in bottles or for handling large jars requires a pasteurising tank. In its simplest form this is merely a tight wooden box, preferably provided with a lid to keep in the steam and lined with soldered sheet iron or copper to prevent leaks. It is provided with a steam coil for heating, a slatted rack to support the containers, and a reliable thermometer to permit control of the temperature. Satisfactory heating may be obtained by the use of waste steam by running a perforated exhaust pipe into the box beneath the false bottom and allowing the steam to escape into the water. If this is done care must be taken that the perforations are so placed that jets of steam cannot strike directly upon the bottles.

In case bottles are being pasteurised in a steam-heated tank, crates which can be filled with bottles will be a great convenience in handling, but the bottles should be inverted or laid on their sides. This ensures the destruction of any organisms present on the caps or lids by keeping the liquid in contact with them during the heating. Add enough cold water to cover the topmost jars completely, put on the lid with the thermometer in place, and raise the temperature gradually to 175 degrees F.

The essential feature in pasteurising is to bring every portion of the juice to a temperature of 175 degrees F., keeping it at this point for about 10 minutes, and then allowing it to cool slowly without exposure to air. In order to bring all the juice to this temperature it is necessary to keep the bath at 175 degrees F. for longer than 10 minutes in order to afford time for the temperature outside and inside the containers to become equalised.

The temperature of the juice will lag behind that of the surrounding water by a period of time proportional to the size of the containers. In pint bottles this time will be about five minutes; in quarts and half-gallons, 10 and 15 minutes respectively; in 1 gallon jars, 20 minutes, 2 gallons 25 minutes, and 5 gallons 45 minutes. In order to determine the length of time for which it is necessary to hold the temperature of the pasteurising tank at 175 degrees F. after it has reached this point, add 10 minutes to the figures given above for the size of container being used, and keep the bath as nearly at 175 degrees F. as possible for that length of time.



Small power type mill and press with elevator.

As no injury to the juice results from it being kept at this temperature for moderate periods, it is a better plan to exceed the time slightly rather than to risk shortening it. Care should be taken, however, that the temperature is not allowed to rise above 175 degrees F., or the juice will develop a "cooked" taste.

When the required time is up, the heat should be turned off and the jars of juice allowed to remain in the water until they have cooled sufficiently to be handled, when they may be removed, examined for defective seals, and stored. If it is necessary to remove the jars while hot, great care must be taken to avoid loosening the seals by rough handling. The containers should be again examined for leaks as they become cool, as the contraction of the cooling juice produces a partial vacuum which may cause leakage.

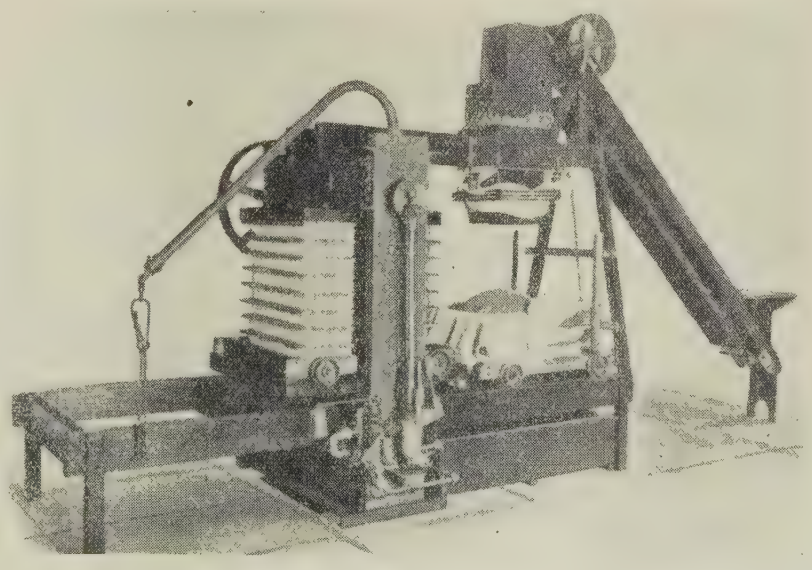
Apple Wine

In many districts it has been the custom to make a home-made wine from apple juice by adding about 1½ lb. to 2½ lb. of sugar to each gallon of juice. This makes an excellent apple wine.

An exceptionally good type of apple wine is made by adding 2 lb. to 3 lb. of honey to each gallon of apple juice The resulting wine, after maturing three or four years, resembles very closely a high-class sweet sherry. The degrees Baume of these fortified juices should read from 15 to 20 before fermentation sets in. A cool cellar is not necessary nor advisable for maturing these sweet wines; in fact, they mature better in a warm atmosphere. Nor need the air be excluded so rigorously as in making cider; its oxidising effect assists the maturing process.

Bottling

A little experience under local conditions is necessary to bottle cider successfully, but as a general rule dry cider which will show a slight effervescence when the bottle is opened can be bottled at 1 deg. B., sparkling cider at 1.5 deg. to 2 deg., and for an extra



Large combined mill and hydraulic cider press, showing the cheese being pressed and the second cheese being built up.

fizzy or champagne effect at 2 deg. to 3 deg. It is not advisable to bottle at a higher gravity than 3.5 deg. B. Very few bottles will stand the pressure produced, and through superfluous effervescence much cider will be lost on opening them. When the cider is bottled at 1 deg. B. the bottles can be filled to the cork and laid on their side in the cellar without wiring. For ciders which are liable to be shaken in travelling it is preferable to leave a space of about 2 in. between the cork and the liquid. Ordinary bottles may be used for ciders of a lower gravity than 2 deg. B.; above that it is necessary to use strong beer and champagne bottles.

Good corks should be employed, preferably impregnated with paraffin-wax. The corks should be soaked in warm water before using. The writer has found more bottled cider spoilt in New Zealand through defective corks than from any other cause. The corks of all ciders bottled at a higher degree than 1 deg. B. should be securely wired. Crown corks are also used.

Cider should be quite clear for bottling. It will generally clear itself in cold weather, when the ferments are less active. It should be exposed to the effects of the cold as much as possible, and closely watched for the propitious moment. To check fermentation and clear the cider it is sometimes necessary to rack it into a barrel containing sulphurous fumes produced by burning a piece of sulphur wick or ring or by the addition of sulphurous acid in the form of potassium metabisulphite at the rate of 2 oz. per 100 gallons of cider. If it does not then clear and the cause is an excess of albuminous matters suspended in the liquid, an addition of pure grape tannin (2 oz. to 42-gallon barrel) dissolved in hot water or cider and then well mixed into the bulk of the cider is to be recommended, followed by another racking after a few days into a sulphured barrel, if necessary.

When a filter is available the cider should be bottled straight from the filter. If the cider is bottled in a cloudy condition a greater quantity of sediment will be formed. Cider which continues fermenting in the bottle always forms a small deposit of sediment, and to minimise the effect of this it is advisable to stand the bottles in an upright position the day before they are required for consumption. An excess of gas leaving the cider when the bottle is opened is likely to raise this sediment, and for this reason it is preferable to bottle the cider at 1.5 deg. to 2 deg. B. This should give sufficient effervescence without raising any of the sediment.

—*B. W. LINDEMAN, Vine and Wine Instructor, Auckland.*

(To be continued.)

Cool Storage Notes on Page 456.

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SW 393

The Home Garden

Small Fruits and Flowers

Seed Sowing in the Home Garden

SEED supplies from overseas may become scarce and costly, and home gardeners should seriously consider means by which seeds already held and those which it will be necessary to purchase could be used to better advantage. Care in seed sowing should be exercised at all times, and not only in years of contemplated or real shortage of seed; it is no less important during any season, and has a real value at any time. Under present conditions it may be expected that the economy of compulsion will become the economy of choice. No seed sowing, however, is likely to be successful without thorough preparation of the soil.

Seed Viability

The following list gives some idea of the average life of the more popular garden seeds, and indicates the approximate number of plants which may reasonably be expected from a given weight of seed. It should also serve as a useful guide to future economy in sowing seed and growing plants.

Seed.	Vitality (years).	Number of seeds per oz.	Germination avge. % for one-year seed.	Quantity of seed for given number of plants.
Beet	4	1,500	70	1oz./2,000
Beans	3	60-80	85	—
Cabbage	4	8,500	80	1oz./4,000
Broccoli	4	10,500	80	1oz./5,000
Brussels Sprouts	4	6,500	75	1oz./4,000
Carrot	3	27,000	70	—
Cauliflower	4	10,500	75	1oz./3,000
Celery	8	75,000-90,000	65	1oz.—8-10,000
Cucumber	10	1,000	80	1oz./100 hills
Lettuce	5	16,000	80	1oz./8,000
Leek	2	9,000	80	—
Parsnip	2	6,000	65	—
Parsley	2	17,500	65	—
Onion	2-3	12,000	75	1oz./6,000
Peas	3	60-120	85	—
Pumpkin	5	100	80	—
Radish	5	3,500	85	—
Squash	4-5	200	80	—
Tomato	4	8,000	80	1oz./3,000
Turnip	4	12,000	85	1oz./12,000
Spinach	3	3,000	70	—
Silver Beet	4	1,100	70	—

Waste in Sowing

Sowing too many seeds for the number of plants required is the most common error of the home gardener and a prolific source of waste. A very small quantity of seed of the ordinary green vegetables sown in a seedling box 4 inches deep and filled with soil will provide enough plants—and to spare—for the average planting in the kitchen garden.

The practice of sowing small quantities of vegetable seeds in the open garden is not a profitable one when compared with the safer and more economical method of using seedling boxes. Seed sown in a box can be protected. The box can be removed to any part of the garden for shade or shelter, and it can even be taken inside the home if extra protection is considered necessary.

Sowing the Seed

To ensure good germination it is necessary for the seeds to have warmth, moisture, and air. Sowings made in cold, wet soil or in positions exposed to cold winds and driving rain are inevitably doomed to failure, and, in many instances, wrongly attributed to the seeds being of low vitality and poor germination. With abundant moisture and without heat, many seeds will rot before germination takes place.

To wait until the soil in the garden is sufficiently warm and is in suitable condition for sowing seed will positively shorten the growing season, and, in some instances, prevent the full development of the crop; hence the necessity for adopting precautionary measures by utilising boxes covered by a sheet of glass, hot-beds, or cold frames. Of these three methods—and there are others—the first and the last will appeal as more practical to the home gardener. The hot-bed, in which stable manure is the heating agent, is rarely adopted now. An old window of reasonable size placed on top of a roughly-constructed frame will protect seed sown in boxes, provided there is sufficient slope to afford a quick run-off for rain. If straw or dry hay is packed in the bottom of the frame to a depth of not less than six inches, this will prevent the boxes coming in contact with the cold, damp soil, and will afford drainage of surplus water when the seedlings are being attended to.

A seedling box 18 in. x 11 in. x 4 in. deep made from an apple case and filled with a mixture of three-quarters good compost and one-quarter sharp sand, among which has been incorporated a couple of handfuls of bonedust or blood and bone, will make an admirable seed bed in which to raise a few plants. When filling the box the soil should be pressed down at the corners and around the sides as well as in the centre before adding additional soil to bring it level at the top.

What to Do in the Home Garden Next Month

Summary of Operations During July

VEGETABLE SECTION.

SEED TO SOW UNDER GLASS.

Tomato (early in the month for the unheated glasshouse); spring and summer cabbage (Golden Acre and Flower of Spring); lettuce.

SEEDLINGS TO TRANSPLANT AND PLANTS TO SET.

Onions, where the ground is in suitable condition. The roots only, and not the bulbs, should be placed in the ground; shallots.

PERENNIAL CROPS.

Plant rhubarb; allow crowns 1 in. soil coverage. The growing of asparagus will be discussed next month, which is a suitable time for planting.

NOTES FOR WARM DISTRICTS

Transplant lettuce. Sow onion seed to develop without transplanting. Sow at the rate of 12-14 seeds per foot.

CROPS IN SEASON.

The month in brackets represents the month of sowing the seed.

Salads.—Endive (Feb.); celery (Sept.).

Greens.—Brussels sprouts (Sept.); cauliflower; winter cabbage; savoy cabbage; borecole; broccoli; silver beet (all in Oct.); spinach (Feb.).

Roots in the Ground.—Beetroot (Globes sown Feb.-Mar. in warm districts); artichokes (Aug.-Sept. tubers); salsify (Oct.); swedes (Nov. and Feb.); celeriac (Sept); parsnips (Sept.).

CROPS IN STORE.

Beetroot; carrots; kumaras; pumpkins; onions; potatoes; shallots.

GENERAL WORK.

Stake autumn-sown peas, if this is not already done. Set seed potatoes of the early crop in trays in a well lighted, well ventilated shed to sprout. There is no need to sprout seed of the main crop. Place orders for seeds. Look over stored crops and remove any showing signs of decay.

Dig under cover crops as soon as they are ready in preparation of the land for spring sowing and planting.

SMALL FRUIT SECTION.

Sow Cape gooseberry seed under glass. The common small-fruited variety is the most suitable. The larger variety, Golden Nugget, produces a jam resembling green tomato jam.

The planting of currants, raspberries, gooseberries, and loganberries should be continued.

The pruning of bush fruits should be completed.

Apply the spray of winter oil (1 in 25 water) in control of white scale of raspberries and loganberries.

FLOWER SECTION.

In warm situations an early planting of gladioli may be made.

Take cuttings of chrysanthemums.

Sow seed under glass for spring planting.

Plant roses and hardy shrubs and trees.

Delay pruning of roses until August and September, but complete the pruning suggested last month.

GLASSHOUSE SECTION.

Plant tomato seedlings in the heated house, and in the unheated house in warm localities towards the end of the month.

Broadcast or Rows

In propagating vegetable plants, it is an advantage to sow the seeds in rows. Broadcasting may be quicker, but when the row method is practised weeds are more easily controlled, thinning, if necessary, is easier, less seed is used, and precaution to prevent, if possible, damping off can be taken by stirring the soil between the rows after the seed has germinated.

Depth of Sowing

No definite rule can be laid down as to the depth at which seed should be sown. Soil and season play an important part in determining the depth. Directions for covering the seed with soil to a depth equal to several times its own diameter may be applicable when growing under protection where water and, to a certain extent, heat can be controlled, but seeds sown in the open in light soil would require greater coverage than if sown in heavy soil. Similarly, seed sown in summer and early autumn would, of necessity, require to be sown deeper than sowings made in early spring.

When sowing has been completed the soil should be pressed gently but firmly, preferably with a piece of dressed timber. This action induces the moisture in the soil to rise which, under dry conditions, will assist the germination of the seed.

Admittedly, production of really good plants of all kinds, particularly on a large scale, is the work of specialists, but, given good, vigorous seed and "healthy" soil, the home gardener should not find it difficult to grow vegetable plants for his own requirements as well as a few for his neighbours.

Co-operation for The Home Gardener

Growing a few plants for one's neighbour raises the question of co-operation among home gardeners as an economic factor in the production of plants for the kitchen garden. Where home gardeners are in close proximity, considerable economy would be accomplished by co-operation in purchasing seed and growing plants as well as in other directions. Reference to the table dealing with seed conservation shows that 1 oz. of cabbage seed may reasonably be expected to produce 4000 plants, and that the recognised life of the seed is four years. (Incidentally, it may be mentioned that good crops have been produced from six-year-old seed.) Also, 1 oz. of lettuce seed is likely to produce 8000 plants.

"Golden Acre" (for summer use) is the name of the next variety of cabbage which is likely to be grown by the home gardener, and the present price is 26s. per lb, or 1s. 7½d. per oz. when purchased by the half-pound. Lettuce seed, "Webb's Wonderful" (a market garden favourite), is quoted at 15s. per lb., roughly 1s. per oz. This means that approximately 12,000 cabbage and lettuce plants may be produced at a cost of 2s. 7½d. for seed if purchased by the pound. And the seed, if properly stored, will be good for at least four years.

Considerable economy could be effected by several home gardeners agreeing that each would grow sufficient plants of one variety to meet the requirements of the others. As transplanting of most vegetable plants is the general practice, co-operation in production would mean a substantial saving of time and valuable garden space. In a seedling box such as that previously described, 120 to 140 cabbage plants and 100 to 120 cauliflower plants can be well grown.

—D. K. PRITCHARD, Instructor in Vegetable Culture, Wellington.

APIARY NOTES

Contributed by Officers of the Horticulture Division

Survey of Beekeeping Industry

AS INDICATED in last month's notes, the past season (1940-41) was a good one for the production of honey in the majority of beekeeping districts throughout the Dominion. Good crops, combined with a stabilised market for honey in New Zealand brought about largely by the operation of the Honey Section, Internal Marketing Division, will no doubt influence a number of small beekeepers to take up commercial beekeeping, but persons who have kept a few hives and secured a phenomenal crop of honey under these conditions should not give up their regular employment and rush into beekeeping as a full-time occupation. Such persons should consult the nearest Apiary Instructor and make sure that they have sufficient knowledge of the industry and also sufficient ready money to begin properly and be able, if necessary, to stand a poor season or two on end.

Commercial Beekeeping

Commercial beekeeping is quite different from any other rural occupation, and calls not only for physical fitness but also a genuine liking for the work. The beekeeper requires a knowledge of the life history and habits of the bees, and also of all nectar sources in the immediate neighbourhood of his apiaries and seasonal apiary requirements.

To operate a few hundred hives successfully a person must have a complete knowledge of scientific queen-rearing and methods of queen introduction. He must thoroughly understand all bee diseases and methods of treatment, wax rendering, harvesting, and packing a crop of honey, and must be able to manufacture certain wooden appliances to keep abreast of replacements at reasonable cost.

No matter how long a person has kept bees in a small way, he should spend at least a season or two with a good commercial apiarist before launching out on his own account, and should at all times keep closely in touch with the Apiary Instructor for his particular district.

The Off-season

This period is regarded as the off season for outside apiary work, and it is appropriate to take a brief look at the position of the industry. The first hive bees (*Apis mellifica*) were brought to New Zealand from England in 1839. Since that time the beekeeping industry has reached considerable importance, and now provides an income and a healthy outdoor occupation for a large number of persons, many of whom are completely dependent upon their beekeeping activities for a living.

Regulations for the registration of all apiaries from one hive upward came into force in July, 1917, and by 1920, 69,877 hives were registered. By 1930 the number stood at 104,239, and by the end of March this year at 127,113 hives contained in 7768 apiaries well distributed throughout New Zealand.

Honey Production

Complete figures showing the total amount of honey produced in New Zealand are not available, as a large number of beekeepers continue to market their honey privately. The following figures are, however, interesting, and give some indication of the importance of the industry. During the year ended March 31, 1941, 19,116 cases of bulk honey (each 120lb net) and 890½ cases of honey packed in small containers passed through the grade stores. Of that quantity, 10,590 cwt., valued at £39,291, was exported as against 5321 cwt. valued at £17,205 for the previous year.

A noticeable improvement in the standard and general condition of honey submitted at the grade store, and also honey in private packs on the local market, is pleasing. This improvement acn no doubt be attributed to the assistance given by the Apiary Instructors, who have continued to give advice and instruction to all persons engaged in beekeeping who show a desire to adopt modern practices.

There is still room for improvement, however, to ensure that all honey of good quality is offered for sale in good condition. Every package of poorly-packed, coarse-grained honey is a bad advertisement for the industry, and does not increase the consumer's desire to eat more honey. Any beekeeper having difficulty in this respect should consult the nearest Apiary Instructor.

Moving Bees

Some beekeepers may be tempted to move their bees to new locations during the cold winter months merely because they have more leisure time during that period. Care should be taken, however, not to move bees long distances while they are in their winter cluster, as this tends to upset them and usually results in spring dwindling and the complete loss of whole colonies if they are not carefully watched.

The best time to move bees in New Zealand is in the early spring, when the bees have begun to take interest in the new season's activities and there is little brood in the hives to be injured. Shifting hives long or short distances may then be carried out with perfect safety, provided adequate ventilation is allowed. The bees also settle down quickly, and will often be found working early pollen and nectar sources within an hour or two of their liberation.

Methods used to confine bees for transport and safe handling will be described in next month's apiary notes, when the time for removals will be closer at hand.

—T. S. WINTER, Senior Apiary Instructor, Wellington.

Notes for the Poultry Farmer

Contributed by Officers of the Livestock Division

Artificial Lighting And Winter Egg Production

By F. C. BOBBY,
Superintendent of Poultry Husbandry, Wellington.

WHILE the artificial lighting of poultry as an aid to winter egg production may not be a form of management favoured by many poultrymen in New Zealand, it is a subject that might well be given more attention, and will, in any case, be one of interest to a number of poultrymen in Otago.

Given good, average laying pullets, the essence of management for winter egg production resolves itself largely into maintaining high food consumption during a shortened day and when additional foods, such as insects and green food, are not available on outside runs. Satisfactory food consumption is essential to encourage laying at a time when it is not entirely natural for birds to produce, but it is equally important that this food should maintain body weight at the same time. Pullets often start their laying with a rapid sequence of eggs. Too often, this rapid production at the start causes a loss in body weight, due in many cases to the food consumption being insufficient to supply the material required to maintain both egg production and body weight at the same time. When this occurs eggs are produced at the expense of body condition, and the result is a neck moult.

By artificial lighting, the time in which birds may feed is lengthened, and every opportunity is afforded for raising food consumption to a high level. For years, commercial egg producers in the United States and in Great Britain have used lighting to increase winter egg production, and have found this form of management both satisfactory and economical where the unit of current costs around 1d per unit. The initial cost of wiring laying houses is a heavy item, and if this is contemplated a knowledge of the best method of using lights will ensure that this money is spent to the best advantage.

Suitable Class Of Bird

The first point for consideration is the class of bird suitable to artificial lighting. Undoubtedly, the best results are obtained from good, average pullets hatched in August or September, and in this connection it should be realised that lighting aids materially in warding off neck moulting among earlier hatched birds. Conversely, lighting is also valuable in helping to bring late hatched pullets into production, and would have helped considerably with birds of this class during the present autumn. Again, if any second season birds have been held back for egg production, these birds benefit by going under lights as soon as they have regained their feathers following the annual moult.

It has, however, always been considered unwise to use lights for breeding birds, and such a practice is not advocated. On the other hand, there is no evidence to prove that harm is done by lighting pullets which are intended to be breeders in their second season. It should be noted, however, that such pullets must not be allowed to go beyond 55 to 60 per cent. production at any time during the lighting period, as beyond this point bodily reserves are drawn upon too heavily. Lighting does not mean that birds are forced to lay a greater number of eggs in the course of the year; the effect is that more eggs are produced during the winter and rather less during the remainder of the laying season.

Details Summarised

For the purpose of simple reading and quick reference, a summary of the more important details connected with lighting poultry are set out under a series of questions:

(1) At what time of the year should lighting start?

The condition of the current year's pullets and their egg production should be considered when deciding this point, but, generally speaking, lighting may be started with advantage during the first two weeks of April.

(2) When should lights be switched on, and for how long should they burn?

There are three methods of lighting laying stock—(a) an evening meal given an hour or two after the birds have perched; (b) an early morning meal before daybreak; and (c) a combination of both methods.

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If evening lighting is contemplated, it is necessary to have a time switch which will dim the lights gradually over a period of about 10 minutes when the time to switch off arrives. This prevents the birds being caught on the floor as the lights go out, when they would be unable to make their way back on to the perches. With early morning lights this device is unnecessary, as the lights remain on until daylight replaces the artificial light. Fortunately, early morning lights have been proved to be satisfactory, and the additional expense of a dimming device is unnecessary.

The aim of lighting should be to allow the birds a maximum total of 12 to 13 hours daylight and artificial light combined. It is not desirable to exceed this total, and moreover, the amount of artificial light should be increased gradually to this maximum by, say, 10-minute daily increases. It should be remembered that it is dangerous to cut lights out altogether suddenly during the winter once the birds are accustomed to this form of management. A sudden change of this kind is very liable to cause a neck moult or, at the least, a check in egg production.

(4) What strength of lighting is desirable?

A careful study has been made of the correct intensity of light to give laying birds. The main objective is a good, even light over the entire floor, and not just bright areas with dim light in between. Thus, it has been found that a 40-watt lamp hung 6 ft. from the floor and backed by a bright metal cone-shaped reflector of 16 in. diameter and 4 in. deep gives the optimum intensity of light. With this size reflector, lights should not be placed more than 10 ft. apart if dark or dimly-lighted areas are to be avoided. To ascertain how many lights are desirable in a house, work out the total floor space in square feet and divide by 200. The nearest whole number arrived at represents the number of lights required.

(5) How should birds be fed during lighting?

In the first place, the customary daily feeding programme should be maintained. Bearing in mind that the object of lighting is to increase food consumption, it now becomes necessary to give extra feed when the lights come on in the early morning. The best form of extra feed is some grain left in the litter over night and a feed of wet or dry mash placed in troughs after the birds have perched at night, such troughs being placed immediately under the lights. The mash aids in the production of eggs, while the grain helps to maintain body condition and supplies scratching exercise for the birds when they leave the perches. Grain alone is not an efficient method of feeding.

From "No Eggs At All" - to 73 Eggs a Week!

Amazing Rise In Egg-Production In 5 Weeks From 17 Birds On Karswood Poultry Spice

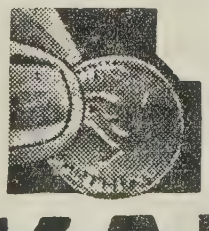
This case may be classed as an exceptional one—for it is not very often a poultry-owner is unfortunate enough to be without a single egg from as many as 17 hens. But we quote it to illustrate even further that, irrespective of the condition and number of birds you keep, the little dash of Karswood regularly in the mash will literally **WORK WONDERS** in egg production, saving labour and money on food costs. Here are the facts:—

For over 3 months this poultry-keeper's birds had been "eating their heads off" without contributing a single egg. Winter came along with still no signs of egg-production, and as a last resort the birds were given Karswood. Needless to say **THEY LAID.** Within a fortnight the yield was 2 to 3 eggs a day, then gradually increased each day until, within 5 weeks, the production had risen to **73 EGGS A WEEK**—an average of over 4 eggs weekly per hen.

Note there was no sudden spectacular rise in the yield, but a steady, gradual improvement. This is because Karswood does not force the birds, but acts in a natural, gentle manner, increasing egg supplies by a natural development of the egg cluster. Karswood is a wonder egg-producer, **SAFE** and **SURE**—it keeps the birds fit and well, maintains the quality of your stock. Prove these facts to *YOUR* profit!

"I feel it my duty to let you know the marvels your Karswood Spice is working with my poultry. I keep 17 hens and for 3 months received no eggs at all despite the fact they were housed well and fed on the best. I finally made up my mind that 'fowls don't pay.' With winter coming on and seeing one of your advertisements in the paper, I decided as a last resort to give Karswood a trial. Within the first fortnight they were laying 2 and 3 eggs a day (45 eggs in all), so I decided to buy a further packet. By that time the number of eggs was rapidly increasing and the birds looked splendid. In the third week the birds laid 44 eggs; in the fourth week 51 eggs and the fifth week 73 eggs. I am now getting 11 and 12 eggs a day. All thanks to your splendid spice—it certainly IS a moneymaker."—W.F.C.

(Original letter on file for inspection.)



¼D. A DAY FOR EVERY FIVE HENS IS ALL IT COSTS YOU

1/- packet of Karswood supplies 20 hens for 16 days; 2/- packet supplies 40 hens for 16 days; 7lb. tin (12/6) supplies 280 hens for 16 days. Try a 2/- packet.

KARSWOOD POULTRY SPICE

Increases egg-production without forcing, because it contains ground insects, but no cayenne pepper, etc.

It is sound management to check up the total **weight** of food consumed in the 24 hours, and to ensure that the pullets are **eating** about fifty-fifty mash and grain. In addition, it is essential to ensure that the birds have access to ample fresh water, and that this water comes within the lighted area.

Finally, if carried out correctly, artificial lighting is not a dangerous method of forcing birds for eggs, but is a sane method of inducing better production at a time when eggs are scarce.

Care of the Breeding Stock

ALTHOUGH it will be several weeks before breeding and hatching start, these operations should now be planned and equipment made ready. Looking well ahead and being prepared is the key to success. Breeding birds should receive the most careful treatment at this season of the year, for, to ensure strong, vigorous, and profitable stock for next year, it is an essential that this year's parents shall be of sound constitution and in perfect condition at the time of mating.

Special attention is directed to the fact that prospective breeding hens should be well fed but not overfed. If good hatches and strong chicks are to be produced, it is important to prevent hens from becoming too fat. This does not imply that the birds should be placed entirely on a starvation ration, but means that they should be fed according to their condition and managed in such a way that they will not put on a surplus of internal fat. The birds should be handled frequently, and if they show a tendency to put on surplus fat, then the ration must be reduced accordingly.

Plenty of Exercise

Breeding stock require plenty of exercise if they are to be maintained in their most vigorous condition and be capable of producing eggs with strong germs.

Free range undoubtedly provides the best conditions for this purpose, but failing this, ample space must be given for exercising. If a fowl's crop is dissected after a day on free range it will be found to contain a naturally balanced ration of different seeds, greenstuffs, grits, worms, and various kinds of insect life, thereby demonstrating Nature's demands in feeding.

Thus, in cases where birds are being kept under confined conditions, the ration should include a variety of whole grains. The greater the variety provided, the greater will be the production of fertile eggs, the stronger will be the germs, and the easier will be the chicks to rear. A chicken is made up of many constituents, and the food provided to the parent birds must contain those essential elements necessary for the formation of well-developed chicks. A variety of grains, an abundance of greenstuff, a restricted quantity of animal food, and provision for ample exercise are among the chief requirements.

While there is little or no danger of overfeeding a heavy laying bird with the right class of food, there is a grave danger of overfeeding the breeding bird when she has just come through a moult and is beginning to produce eggs for hatching purposes. Where only market eggs are being produced, the birds can be forced with meat, milk, etc., and as a result the formation of surplus fat will be discouraged. Such treatment, however, would be detrimental where the breeding bird is concerned, as a highly forcing diet may easily lead to trouble in the hatching and brooding operations.

The Breeding Male

While it is necessary that the hens should be maintained in the best possible condition, it is equally important that the male bird be well treated.

Sending Blood For Testing

Poultrymen forwarding samples of blood to the Animal Research Station, Wallaceville, should note that it is essential to forward an adequate amount of blood for testing IN EVERY TUBE. Unless at least a third to one-half tube of blood is sent testing is difficult. Many samples have been sent recently with insufficient blood. Poultrymen are asked therefore to note this fact and to help by sending more blood in future.

In the mating of stock the male bird has an important bearing—he is at least half the breeding pen. Before anything else, a male bird must possess features indicating strong constitutional vigour, while in addition he should be the son of a healthy mother with a record of egg-laying performance behind her.

Strong masculine characteristics are essential, as indicated by good chest development, good width and depth of body, stout legs, with flat bone (not round), a stout, well-curved beak, and generally a bold carriage. It is important to bear in mind that the feminine-looking male or the masculine-looking female should never be mated.

Size is all-important whether in the male or female, and poultry breeders should never mate under-sized specimens of any breed. The small one will come soon enough even when good-bodied birds are mated. Size and constitution can be lost in a short time by faulty selection of breeding stock, while to regain these essential characteristics may take years. Successful poultry-keeping depends primarily upon sound breeding practice.

—H. A. KITTO, Poultry Instructor, Wellington.

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N.Z. Federation of Young Farmers' Clubs

Edited by S. Freeman, Dominion Organizing Secretary

Annual General Meeting Of Y.F.C. Federation

THE seventh annual general meeting of the N.Z. Federation of Young Farmers' Clubs (Inc.) will be held on Wednesday, July 30. The meeting this year will be held at Hamilton, in accordance with the decision of the last annual meeting, when it was agreed that the annual general meetings should be held alternately at the four council centres.

Delegates attending the meeting are assured of a very hearty welcome from the members of the Auckland Council, which is planning entertainment in the form of a visit to the Ruakura Animal Research Station and a trip around the district on the day following the meeting. All members of the four councils are eligible to attend and vote at the annual general meeting, and in addition to these, any club or district committee member is entitled to attend and take part in discussion. It is hoped that members will take advantage of this, and that the attendance will be worth while. The meeting, which is in the nature of a conference, will provide opportunity for members to meet and discuss matters of importance affecting the policy of the Y.F.C. movement generally during the present critical period.

Notices of the meeting, together with the agenda, remits, etc., will be forwarded shortly to all council members, and a general invitation is extended to all members to attend. The annual general meeting will begin at 10 a.m., and will be preceded at 9 a.m. by a meeting of the Dominion Executive Committee.

Feilding Club's Stock Judging

By F. M. HENSON, Hon. Secretary, Feilding Y.F.C.

THE Feilding Y.F.C. held a judging competition and demonstrations at the Feilding Agricultural High School's annual show. There was a good attendance of club members, and we were pleased to have the District Chairman, Mr. R. O. Gloyn, with us.

The competition was open to club members and pupils of the school, the two competitions being judged separately. Four classes of stock were judged: dairy cows, pigs and Romney and Southdown sheep. Prize money was 10/6 in each class and a points trophy was offered in the Y.F.C. section, and 5/- and 2/6 in each class for the pupils of the school.

The judges and demonstrators were club members who had been successful in district and council judging competitions.

Club members had a very interesting and instructive day, and it is hoped to make this an annual competition. It is interesting to note that a Young Farmers' Club held a show at the school about the years 1922 to 1932 and that this was one of the earliest Y.F.C.'s in New Zealand, although not connected with the present Y.F.C. movement.

The following were successful in the various classes:—

Dairy Cattle.—N. Pedersen, 1; K. D. Galloway, 2; D. G. Colquhoun, 3.

Pigs.—E. Beazer, R. O. Gloyn, N. Pedersen.

Romney Sheep.—D. G. Colquhoun, J. H. McKinnon, J. B. Baird.

Southdowns.—L. E. Hansen, J. B. Baird, K. D. Galloway.

Points Prize. — N. Pedersen (213 points), 1; D. G. Colquhoun (211 points), 2.

Northern Hawke's Bay District Committee Meeting

A MEETING of the Northern Hawke's Bay District Committee was held in Hastings at which the following were present:—Chairman, W. G. Brownlie (Wairoa), W. Powdrell (Wairoa), F. Magill, D. Beamish (Matapiro), E. Boustead, D. Anderton (Putorino), G. Tod (Nuhaka), S. Parsons, E. Fairey, L. Griffiths (Meeanee), S. Freeman (Organising Secretary), and R. P. Hill (District Secretary).

The financial statement showed a credit balance, but the amount was not nearly sufficient to meet in full the travelling expenses of delegates to Christchurch and Palmerston North. The expenses for two years were still not refunded. An endeavour was being

made by clubs to raise funds to be donated for this purpose. In the meantime, as far as the funds would permit, it was decided to reimburse members a small portion of their expenses. The position, however, was not considered satisfactory in that it was hardly fair to ask delegates who could ill afford it to travel long distances at their own expense.

In reviewing the whole position of the movement during war time, the chairman, Mr. Brownlie, stated that it was imperative wherever possible for clubs to hang together, firstly exerting all their efforts to help the war. Even though they individually might not be in a position to join the fighting forces, as farmers they could do a great deal, producing essential food stuffs, etc. Meetings of clubs should be held, but it was probably unwise to hold any "stunts." He felt that after the war the Y.F.C. organisation would be able to do much to assist in the rehabilitation of the returned men.

Reports from individual representatives of the clubs present indicated that despite the growing shortage of members due to the war, these clubs would be able to carry on.

It was arranged for the chairman to interview the Provincial President of the Women's Division in connection with the formation of Young Women's Young Farmers' Clubs. He was also to meet the Station Director, 2YH, in connection with the recording of talks by members for delivery from 2YA.

An endeavour is to be made to encourage the formation of Maori Young Farmers' Clubs.

Among the Clubs: Reports on Activities

Western Southland.

Dipton.—Business meeting; selection of speakers for debate.

Drummond.—Arrangements for field day. Appointment of relieving secretary, to carry out duties while hon. secretary is in Territorial camp.

Orepuki.—Address by Mr. C. Aberdeen, on "The Digestive System of a Cow."

Thornbury.—Talk by Mr. Dugald McPherson on the experimental work in Southland relative to cobalt deficiency.

Woodlands.—Annual meeting. Officers elected: Chairman, L. Middlemiss; vice-chairmen, H. McKenzie and B. Butson; secretary, A. S. Trotter; treasurer, A. J. N. Campbell; advisory members, Messrs. G. Stevenson, J. Middlemiss, J. Lilico, and V. Butson, sen.; hon. auditor, Mr. J. McHardy. Suggestions made for increasing interest in club work and drive for new members. Canterbury Chamber of Commerce Agricultural bulletins to be supplied by club to members. At a later meeting it was decided to hold a combined Y.F.C. field day at Winton Experimental Farm, and to include a visit to the linen flax factory. Speakers selected to broadcast from 4YZ as follows: —M. Clark, L. Middlemiss, and K. Hargest. Club to support the inter-club debate this season. Dance to be held in aid of Red Cross Funds. Donation of £1 1s to Patriotic Fund. Discussion re Y.F.C. experimental scheme; several members promised support, including M. Clark, L. Middlemiss, and A. Campbell. Mr. A. Stuart, Department of Agriculture, spoke on the Y.F.C. experimental projects, and discussed wartime aspects of farming generally, including the increased areas for linen flax.

Eastern Southland.

Balfour.—Programme drawn up for current year. Club librarian appointed. Full discussion as to whether club should continue its activities: decided to carry on.

Five Rivers.—Annual meeting. Officers elected: Advisory president, Mr. M. A. G. Muir; chairman, A. J. Drummond; secretary, J. M. Hamilton; treasurer, S. J. Burdon. At a later meeting a lantern lecture on "The Middle East" was given by Mr. G. Hamilton.

Otama.—Annual meeting. Officers elected: Advisory president, Mr. S. Mackay; chairman, L. G. Mackay; secretary, T. A. Logan; treasurer, H. White.

South Otago.

Clinton.—Annual meeting. Officers elected: Advisory president, Mr. J. Murray; chairman, C. McLachlan; acting secretary, J. C. Mitchell. The club decided to carry on until next September, when the position is to be reviewed; every endeavour is to be made to secure local speakers and to encourage social activities.

Clutha Valley.—Annual meeting. Officers elected: Chairman, G. Klein; secretary, E. Coll. Arrangements for club ball in the Greenfield Hall. Two new members enrolled. At a later meeting, owing to the assignation of the secretary, A. K. Paisley was appointed to fill the position; three new members enrolled.

Lawrence.—Annual meeting. Programme drawn up for current year. Arrangements for club ball.

Central Otago.

Roxburgh.—Annual meeting. Officers elected: Advisory president, Mr. N. T. Kinaston; chairman, D. Lister; secretary, J. A. Stringer.

Dunedin.

West Taieri.—The resignation of the chairman, A. V. Johnstone, who has left to take up military service, was received with regret; the vice-chairman, A. M. Peid, was elected as chairman. Several members of the South Taieri Club were present by invitation. Members of the special committee set up by the Otago-Southland Council to investigate the Y.F.C. experimental scheme were also present. The scheme was fully explained and a general discussion held, this being of particular value to the members of the committee, enabling them to ascertain the points of view of those who proposed to participate. At the previous meeting Mr. Alan Miller addressed the club on "The Preparation of Ewes and Rams for the Breeding Season."

North Otago.

Enfield.—Annual meeting. Officers elected: Advisory president, Mr. R. Wilkinson; chairman, W. Hellowell; secretary and treasurer, J. Frew. At a later meeting a talk on "Concrete Posts" was given by Mr. R. Wilkinson.

Five Forks.—Annual meeting. Officers elected: Advisory president, Mr. M. Austin; chairman, W. J. Kingan; secretary, E. F. Ruddenklau.

Hampden.—Annual meeting. Officers elected: Advisory president, Mr. W. Gillies; chairman, E. Cleghorn; secretary, J. R. Murcott; treasurer, A. Gillies.

Papakaio.—Annual meeting. Officers elected: Advisory president, Mr. D. Borrie; chairman, G. Lewis; secretary, R. Aubrey; treasurer, T. Trotter.

South Canterbury.

Cannington.—Annual meeting. Officers elected: Chairman, N. Crawford; secretary, G. H. Squire; treasurer, W. Little. Lecture by Mr. R. Cleland, Totara Valley, on "The Care and Management of the Ewe Flock."

Geraldine.—Talk by Mr. W. A. Sherratt on "The Early History of Geraldine." At previously unreported meetings an impromptu speech was delivered by K. Hibbs on "Linen Flax Growing." A club debate was held, the subject being "Should Farmers Grow More Wheat?" and a general talk on the dairying industry was given by Mr. S. W. Booth. It is interesting to note that this club is still holding fortnightly meetings.

Maungati.—Business meeting; programme of lectures, etc., drawn up.

Milford.—Annual meeting. Officers elected: Chairman, G. D. Crossman; vice-chairman, P. J. L. Dale; secretary, R. Palmer; treasurer, W. McCormick; advisory members, Messrs. A. Johnson, J. Woodhead, A. D. Crossman. Decided to hold meetings fortnightly through the winter months. Discussion on the Y.F.C. experimental scheme, and on the appointment of junior stock judges at A. and P. Shows. Subcommittee set up to arrange programme of activities for the current year.

Mid-Canterbury.

Ashburton.—Sum of £2 voted to local patriotic appeal. Talks by following club members, G. Watson, A. Davison, N. Read, H. Bennett, and A. Hydes. At the previous meeting a talk on "Linen Flax" was given by Mr. G. K. McPherson, Department of Agriculture.

Hinds.—Discussion on the Y.F.C. experimental scheme. Club debate on "That Large-scale Co-operative Farming is in the Best Interest of the Dominion"; speakers, J. R. Tait, A. McKenzie, and J. Tait (affirmative), B. J. Simmons, R. Ferriman, and M. Davidson (negative). Mr. L. Watson acted as judge and gave the award to the affirmative team. Officers elected at the annual meeting: Advisory president, Mr. H. L. Chisnall; chairman, B. J. Simmons; vice-chairman, D. Chisnall; secretary, J. R. Tait; treasurer, L. Watson.

Methven.—Talk by Mr. Renai on "Mortgages and Leases." Officers elected at the annual meeting: Advisory president, Mr. R. J. Low; chairman, H. J. Poff; deputy chairman, R. W. Wightman; secretary, C. Watson; treasurer, J. Penny. At a previous meeting Mr. J. Riddell spoke on "Irrigation" illustrating his talk by means of films dealing with the Mid-Canterbury and Levels Irrigation Schemes. A field day was held, comprising an inspection of the linen flax factory at Methven, where members were shown over by Mr. Helps, and a visit to Mr. Todhunter's property at Mt. Hutt, where Mr. Todhunter conducted members over the farm and also demonstrated on Merino sheep.

Christchurch.

Ellesmere.—Address by Mr. C. Howe, Consulting Officer to the New Zealand Dairy Board, on "The Advantages of Herd Testing." At the previous meeting Mr. R. H. Bevin, of Lincoln College, gave a talk on "Some Aspects of Grassland Farming."

Darfield.—Discussion on Y.F.C. experimental scheme; 12 members decided to lay down wheat manurial trials. Address by Mr. J. R. H. Archer on "The Correct Method of Conducting a Meeting." At the previous meeting arrangements were made for a field day on Mr.

R. S. Gunn's property, comprising stock-judging in the following sections:—Southdown ram-hogget, Corriedale ewe-hogget, Clydesdale horse and dairy cattle. Films of general interest were exhibited by Mr. F. Bull. Three new members elected.

North Canterbury.

Amuri.—Arrangements for future activities. "Question-box" evening, which proved a successful innovation. A field day was held on Mr. C. Gardner's property, "Emu Plains," Rotherham. Mr. Gardner conducted members over the farm, giving very informative talks on the different pastures, etc.; farm buildings and implements were inspected, and also the new woolshed. There was an attendance of 25 at the field day.

Cheviot.—Annual meeting. Officers elected: Chairman, R. Harrison; secretary, J. D. R. Winskill; treasurer, W. Crampton. Talk on the work of the Department in connection with the linen flax industry by Mr. E. G. Smith, Department of Agriculture, Rangiora.

Cust.—Annual meeting. Officers elected: Advisory president, Mr. C. A. Woodfield; advisory members, Messrs. F. Sheat and Mr. Spencer Bowes; chairman, L. Blackmore; secretary, I. Graham; treasurer, B. McIntosh; club reporter, C. Wheeler. Mr. E. G. Smith, Department of Agriculture, was present at the meeting. Two new members elected. The sum of £21 raised by club for Cust Patriotic Gala.

Hawarden.—Officers elected for current year: Advisory president, Mr. J. W. Earl; chairman, A. G. Lawrence; secretary, A. B. Dalzell; treasurer, R. Mason.

Oxford.—Annual meeting. Officers elected: Chairman, J. Perham; secretary, N. Hepburn; reporting secretary, G. Early. Decided to hold annual ball. Debate to be held, subject: "That Speed is Essential to Modern Civilisation."

Scargill-Omihi.—Talk on "Linen Flax" by Mr. E. G. Smith, Department of Agriculture. Officers elected at annual meeting: Advisory president, Mr. J. Sloss; chairman, I. F. Munro; secretary, A. Stone, jun.; treasurer, I. G. Maxwell.

Marlborough.

Blenheim.—Arrangements for annual dance: assistance being given by Junior Women's Division. Vote of sympathy to W. Neale, a member who is at present in hospital. Talk by Warrant-Officer H. Nash on "Unrest Problems of the North-West Frontier of India." At the previous meeting Dr. Boag gave a talk dealing with his voyage with the Second Echelon to England and his experiences while stationed there. Dr. Boag will give another talk later in connection with his trip from England to the Middle East whence he was invalided home.

Flaxbourne.—Arrangements for the judging entries at the A. and P. Show. Lecture on "Keeping the Farmers' Books" by Mr. Cooke, Wellington Correspondence School.

Nelson.

Moutere.—Annual meeting. Officers elected:—Advisory president, Mr. R. Teece; chairman, B. L. Benseman; secretary and treasurer, K. A. Thomas.

Murchison.—Decided to arrange for "Journals" to be sent to members serving overseas. Talk by Mr. D. Win on "Australia."

Wairarapa.

Alfredton.—Team selected for stock-judging contest at Carterton. Talk by Mr. Duffie on "Bee-Keeping." At the previous meeting Mr. Dickie, Farm Dairy Instructor, spoke on "Dairy Management."

Carterton.—Two club debates held, the subjects being "That Science has Proved a Benefit to Mankind," and "That the Horse has Helped the Advancement of Farming More than the Dog." Three new members enrolled. Preliminary arrangements for debate with Martinborough Club.

Masterton.—Twelve new members enrolled. Arrangements for dance to be held after the stock-judging at Carterton. Teams selected for stock-judging. Movie film exhibited, showing the difference between track and wheel type tractors, etc. At the previous meeting a film was shown dealing with New Zealand activities, including a trip down the Wanganui River by canoe, and the Tararua Ranges from the air.

Horowhenua.

Johnsonville.—Annual meeting. Officers elected:—Advisory president, Mr. A. Horrobin; chairman, G. Bryant; secretary, H. Burke; treasurer, A. Beech. At a previous meeting Mr. D. Marshall, M.R.C.V.S., gave an interesting lecture on "Diseases in Stock." A successful stock-drive, held recently, resulted in over £300 being collected for patriotic purposes. The club has donated over £25 to patriotic funds. Four club members are now serving overseas, while a number of others are in the Territorial Forces.

Levin.—Arrangements for dance in conjunction with Junior W.D.F.U. Result of patriotic stock-drive, £259 10s. 1d. Impromptu debate, all members present taking part. At the annual meeting, officers were elected as follows:—Advisory president, Mr. H. J. Lancaster; advisory members, Messrs. R. A. Macdonald and C. E. C. Webb; chairman, V. C. Lewis; vice-chairman, R. M. Law; secretary, R. Speedy; treasurer, H. Marshall. Mr. G. S. Robinson, Department of Agriculture, outlined the Y.F.C. experimental scheme. Four new members elected.

Opiki.—Annual meeting. Officers elected:—Advisory president, Mr. R. M. Phillips; chairman, E. Davy; secretary, R. D. Vile; treasurer, B. Olsen. Mr. G. S. Robinson, District Y.F.C. Secretary, led discussion regarding a drive for new members, etc.

Manawatu.

Apiti.—Talk on "The Training of an Air Force Pilot" by Sergeant-Pilot H. Viles, a former club member. Officers elected at annual meteing:—Advisory president, Mr. H. C. McIntyre; chairman, E. S. Payton; secretary and treasurer, R. T. Stewart.

Bunnythorpe.—Final arrangements for annual dance. Discussion re "Parents and Friends" evening. Address by Mr. C. Taylor, of the engineering firm of Taylor and Painton, entitled "My Journeyings Abroad," with special reference to his sojourn in Sweden.

Feilding.—Report on stock-judging competition held at Feilding Agricultural High School. Report by delegates to annual district meeting. Committee set up to ascertain possibilities of holding the district stock-judging competition at Feilding. In connection with Y.F.C. experimental scheme four linen flax plots were reported as laid down. Lecture by Mr. E. P.

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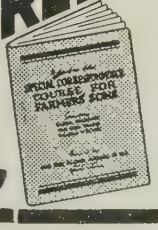

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Neilsen on "Cattle Breeding" and "Sire Survey Work in New Zealand."

Kairanga.—Talk by Mr. W. Ward on "Genetics."

Kimbolton-Kiwitea.—Officers elected at annual meeting:—Advisory president, Mr. A. Lawson; chairman, G. Craine; secretary and treasurer, E. G. Batchelor.

Rongotea.—Motion of sympathy with Mr. O'Connor in his serious illness. Recommendation to District Committee that district stock-judging competition be held. Committee set up to arrange a complimentary dance to members in Territorial Forces. Sound films of agricultural and general interest exhibited by Mr. H. de O. Chamberlain, Department of Agriculture.

Waituna.—Arrangements for club debate. Talk by Mr. W. F. K. England on "The Training and Working of all Types of Sheep Dogs." The speaker also gave an outline of the procedure followed at dog-trials.

Wanganui.

Bulls.—Report by delegates to annual district meeting. Report on linen flax trials undertaken by members in connection with Y.F.C. experimental scheme. Arrangements for annual ball. Further parcels to be sent to members serving overseas. Lantern lecture by Mr. E. P. Neilsen, Dairy Council, Palmerston North, on "Genetics and Herd-sire Selection." This was a further lecture to one given 12 months previously. At a previously unreported meeting a lecture was given on "The Laying-down, Management, and Utilisation of Pastures" by Mr. C. J. Hamblyn, Department of Agriculture.

Mangaweka.—Presentation to Mr. G. McDiarmid, an advisory member, who is leaving the district; Mr. J. O'Callaghan appointed in his place. A sheep-judging contest was held, followed by a short lecture on "The Points of a Sheep" by Mr. G. N. Bramley, advisory president. A short lecture on "Count and Tops of Different Classes of Wool" was also given.

South Taranaki.

Alton.—Arrangements for calf-judging. War Effort Fund started with £5 from club funds. Talk by Mr. H. G. Dickie, M.P., on his travels abroad, and "The Meat Problem."

Central Taranaki.

Pukengahu.—Talk by Mr. D. Blackstock on "Land Finance." Officers elected at annual meeting:—Advisory president, Mr. H. Blackstock; chairman, I. Thompson; secretary and treasurer, C. Bremer.

North Taranaki.

Inglewood.—Annual meeting. Election of officers. Talk by Mr. J. M. Hopkins, Department of Agriculture, on the Y.F.C. experimental scheme.

Mangorei.—Talk by Mr. D. Hull, Dairy Instructor, on "The Manufacture of Butter"; the speaker detailed the various processes undergone from the arrival of the cream at the factory to the finished product.

Southern Hawke's Bay.

Ballance.—Arrangements for annual ball. Lecture by Mr. T. Richardson on "Grass Seeds."

Dannevirke.—Annual meeting. Officers elected:—Advisory president, Mr. E. N. Hogben; chairman, H. M. Poole; vice-chairman, G. Stroud; secretary, K. Bateman; treasurer, G. Stroud; advisory members, Messrs. G. J. J. Buchanan and L. Feierabend.

Mangatainoka.—Annual meeting. Officers elected:—Patron, Mr. J. E. Hewitt; advisory president, Mr. F. E. Ward; chairman, J. Aislabie; vice-chairman, I. Algie; secretary and treasurer, H. Bairstow; club reporter, I. Algie. Meeting decided to deposit £5 in the National Savings Account.

Norsewood.—Report of annual dance; Patriotic Society to benefit to extent of £8. Two new members elected. Lecture on "Care of Cream," by Mr. Bennett, local butter factory manager.

Central Hawke's Bay.

Tikokino.—Annual meeting. Officers elected:—Advisory president, Mr. A. G. Mowat; chairman, R. Williams; secretary, O. Rumball; treasurer, J. Coles.

Northern Hawke's Bay.

Matapiro.—Two prepared debates held, the subject being (1) "That the growing of barley in this locality for fattening pigs is economical," and (2) "That Romneys are superior to Southdowns in this locality." Speakers: First debate, W. Farquhar, T. Lamont, J. Farquhar (affirmative), and R. Booker, G. Algie, B. Stewart (negative); second debate, I. Lancaster, G. Griffin, C. Wills (affirmative), and C. Bridgeman, F. Magill, E. Butt (negative). Mr. E. H. Beamish acted as adjudicator, and, after a very thorough and informative criticism, gave his decision in favour of the affirmative in the first debate, and the negative in the second debate. A hearty vote of thanks to Mr. Beamish for his services was proposed by F. Magill and carried by acclamation. Officers elected at annual meeting:—Advisory president, Mr. A. W. Whyte, sen.; chairman, A. W. Whyte, jun.; vice-chairman, T. Lamont; secretary and treasurer, E. B. Butt.

Wairoa.—Arrangements for Farmers' Ball. Chairman congratulated upon his recent marriage to Miss J. McRae. Mr. G. F. Hudson, Department of Agriculture, Wairoa, discussed "Stock Diseases, Worm Troubles, and other Ailments."

Poverty Bay.

Te Karaka.—Annual meeting. Officers elected:—Chairman, W. Percival; secretary, M. S. Campbell; treasurer, N. Duncan. The meeting concluded with a social hour, billiards, and cards.

Te Kuiti.

Mokauiti.—Annual meeting. Officers elected:—Chairman, R. Blundell; vice-chairman, R. McFarlane; secretary, J. N. Law, treasurer, W. Tatham. Arrangements for annual dance. Talk by Mr. K. M. Montgomery, Department of Agriculture, on "The Northern King Country's Y.F.C. Court at the Waikato Winter Show."

Otorohanga.—Two new members enrolled. Committee appointed to make arrangements for Y.F.C. Court at Waikato Winter Show, Hamilton. Debate with team from Kakepuku Club, subject, "That the Modern World is Degenerating." The visiting team, as follows, supported the affirmative, W. Neill, G. Langdale, D. McLeay, B. McVerry. The local team, S. Tye, H. Murphy, J. McDowell, C. Murphy, took the negative. Mr. S. W. Webber acted as adjudicator, and gave his decision in favour of the affirmative by 343 points to 328. A field day was held on Mrs. A. Marshall's farm, taking the form of a post-mortem on a cow suffering from tuberculosis, Mr. Bonner, Stock Inspector, conducting the operation. The annual King Country Y.F.C. Stock Judging Competition was held on the properties of Messrs. Tipping Bros., F. Richmond, and Mrs. Murphy; the F.A.C. Cup and miniature, presented by Mr. S. D. Tye, was won by R. Davidson, Otorohanga, M. Stokes, Te Anga, being second. The judges were Messrs. Johnston (sheep), R. Davis (pigs), D. Hutchings (cows), and J. Turnbull (fat cattle). Officers elected at the annual meeting:—Advisory president, Mr. H. H. Evans; chairman, M. Shields; deputy chairman, D. W. McCormick; secretary, J. McDowell; treasurer, D. Brightwell; minutes secretary, S. D. Tye.

Western Bay of Plenty.

Paengaroa.—Annual meeting. Officers elected:—Advisory president, Mr. J. B. Cawte; chairman, S. McDowell; secretary, E. Marsh; treasurer, C. Ridell. A field day was held at the Whakatane paper mills, over 30 members attending.

Tauranga.—Entries closed for the Doidge Ensilage Crop and also the maize competition. One new member enrolled. Material gathered for the Y.F.C. District Court at the Waikato Winter Show. Address by Mr. P. Keenan on "Debating." Impromptu speeches were given by all members present. Officers elected at the annual meeting:—Advisory president, Mr. G. G. Norris; chairman, L. S. Ferguson; secretary, N. T. Murray; treasurer, J. Wright.

Waihi High School.—Annual meeting. Officers elected:—Advisory presidents, Messrs. A. J. Simpson and V. Evans; chairman, J. Blackmore; secretary, J. McGregor; treasurer, R. D. Jordan; auditor, Mr. V. Evans. A field day was held on Mr. R. Haszard's farm, Waihi Plains; demonstrations included the following: "Layout of Piggery and Cowshed" (Mr. R. Haszard) and "Farm Crops and General Layout of Farm" (Mr. G. Haszard).

Eastern Bay of Plenty.

Edgecumbe.—Annual meeting. Officers elected:—Advisory president, Mr. W. A. McCracken; advisory members, Messrs. I. B. Gow, J. Black, F. J. Reynolds; chairman, G. A. Robins; secretary, N. F. Reynolds; treasurer, G. Crang.

Waikato.

Cambridge.—Recent dance showed profit of £11. Two new members enrolled. Arrangements for field day and debate. Mr. Ritchie, Hamilton, exhibited films as follows:—"Salvaging the Port Bowen," "Shell Magazines," "Travelogue of India," and "Work of Rivers."

Kakepuku.—Talk by Mr. W. MacKenzie on "Flying Experiences in the Great War." At the previous meeting an address was given by the Rev. Martin Sullivan, "The B.B.C. Commentator; the late Mr. A. G. MacDonnell and his Writings."

Tahuna.—Arrangements for dog-trial and annual ball.

Tauhei.—Sound films exhibited by Department of Agriculture, Hamilton. Collection for patriotic purposes realised £2. Arrangements for club debate. Members to attend dog-trials at Tahuna. Club to sponsor the sending of parcels to members overseas.

Te Awamutu.—Annual meeting; election of officers, etc.

Thames.

Hauraki.—Special meeting to discuss ways and means of assisting in Y.F.C. Courts at Waikato Winter Show.

Auckland.

Franklin.—Arrangements for dance in aid of Patriotic Funds. Officers elected at annual meeting:—Advisory president, Mr. A. Wood; advisory members, Messrs. Draper and W. K. Franke; chairman, K. Franke; secretary and treasurer, C. E. Wolfgram.

Harrisville.—Report on field day at Paerata and lecture by Mr. Carbury, Government Veterinarian, on veterinary work generally. Officers elected at annual meeting:—Advisory president, Mr. S. White; chairman, G. A. Barnett; secretary, E. D. Williams; treasurer, N. G. Barnett. At a previous meeting, Mr. G. E. Bell exhibited films depicting scenic attractions of New Zealand.

Hunua.—Impromptu debate, "Dairy Farming v. Sheep Farming." Speakers: J. E. Bell (Department of Agriculture), K. Pollock, J. Bradstreet, I. Sexton (dairy farming); H. Woodyear-Smith (Challenge Phosphate Co.), N. Kelly, I. Bradstreet, E. Sexton (sheep farming). The decision was given in favour of the team supporting dairy farming.

Mauku.—Films exhibited by Mr. H. Woodyear-Smith, "The Waikato River" and "Haymaking"; Mr. Smith provided a commentary on the latter film. At the previous meeting a general discussion was held on the "Wintering of Pigs." Officers elected at annual meeting:—Advisory president, Mr. A. Woolsey, jun.; chairman, W. Wymer; secretary, N. J. Bellhouse; treasurer, B. Wymer; advisory members, Messrs. E. S. Lemon and A. V. Hill.

Warkworth.

Kaukapakapa.—Annual meeting; election of officers. Talk by Pilot Officer E. W. Barnett (Dominion Y.F.C. president) on "Young Farmers' Clubs in Wartime." At the previous meeting nominations were received for scholarships at Ruakura and a talk on "Pioneer Days of Kaukapakapa" was given by Mr. Gavin Shanks.

Whangarei.

Matarau.—Annual meeting. Before electing new officers a discussion took place as to whether the club should go into recess for the period of the war. It was realised that with falling membership it would be difficult to hold regular meetings; nevertheless the meeting felt that an attempt should be made to hold the club together, and officers were elected as follows:—Chairman, W. A. Rushbrook; secretary, I. D. Bodle; advisory president, Mr. M. M. Wilsher; advisory members, Messrs. M. G. Agnew and A. J. Comrie.

Maungataramea.—Annual meeting. Officers elected:—Advisory president, Mr. F. Litt; chairman, D. Hignett; secretary and treasurer, P. Gillingham.

Health Notes for the Farm

Contributed by the Department of Health

Building Sound Bodies

"Nothing on earth is so valuable to man as a sound body. The old Romans held that in a sound body dwelt a sound mind. We can go further and admit that the actions of a soul itself are influenced by the health of the body, for it is only the soul's machine, and it is the soul's only machine on this planet. More sins are the result of defects in our physical machine than we can realise."

—"Yourself and Your Body," by Sir Wilfred T. Grenfell, M.D.

CIVIC and national greatness are usually shown by great buildings, fine bridges, paved streets, and beautiful parks and avenues. Greatest care is taken to put the best and strongest of materials in these things so that they will last indefinitely. The style and beauty of the buildings are such as to please the eye and excite the admiration. Streets are made smooth and straight, free from defects, and wherever possible are lined with trees and shrubs to add to some of the beauty of Nature. Parks are kept in order and made attractive for the enjoyment of hours of the outdoors.

Much thought is put into all these activities. The foundation of a building is the great essential in the construction of the massive lofty building, for upon the firmness of its base depends the life of the superstructure. Then the steel girders are put in place to form solid framework which will withstand the stress and strain of storm and temperature. Then brick, stone, and cement are added to enclose the building and give protection against the ravages of time and fire. How similar is the building of that most important structure—the human body!

Foundation Of Health

What is the foundation of health of the human body? It lies deep in heredity. Healthy parents furnish a healthy basis to their offspring, barring accidents of birth. The combined health factors of the parents are given to every cell of the child's body. That is the first essential of vital resistance or protection against disease. Two parents are like two baskets or bundles of traits from which the child takes its traits at random. In the wonderful play of "Bluebird" we are taken to the land before birth where the children are waiting to be born, having selected their parents-to-be. Of course, this is only a pleasant fancy, like the advice of Oliver Wendell Holmes to children to choose good grandparents, but it is a useful fancy which helps us to understand the law of heredity.

We all know how children inherit physical, mental, and moral traits from their parents. So the first foundation, or requirement, for enjoyment of personal health is a sound body, born of good stock, and its careful education throughout life—a matter of nurture and heredity associated with nature and training.

The instruction in mothercraft may be looked upon as an important aspect of health education in the interests of the future welfare of our race. The reduction in infant mortality is no doubt due to the combined action of various factors, but there is no question that one of the weapons which has been most effective in this campaign is the education of the mother. The healthy development of the baby and the little child is mainly dependent upon the care and intelligence of the mother, upon her knowledge and good sense, upon her willingness to learn and to take advantage of such opportunities for advice and help as are available. The booklets, "Suggestions to Expectant Mothers" and "The Baby's First Month," obtainable at the Plunket rooms, are designed to guide mothers in such matters. The child clinics now being opened with the co-operation of the Plunket Society will enable parents to obtain advice from the school doctor and the Plunket Nurse about their young children below school age.

Let us continue our contrast of the human body to a structure of steel and stone, imperfect as it may be. The framework of solid, growing bones and teeth, correspond to the steel skeleton of the building. For these, the right kind of food is necessary, such as is outlined in the booklet, "Good Nutrition," on sale at booksellers throughout the Dominion. The muscles, fat, and skin correspond to the stone and brickwork of the building. These are the walls of the human building which give strength and beauty, and also enclose and protect the vital organs. Here, proper diet, exercise, and personal hygiene play an important part in providing healthy muscles and skin.

Cleanliness Is Important

A tall building, no matter how strong and beautiful it may be, is useless for occupancy without a good heating plant, water pipes, elevators, sewage, and ventilation system, and so forth. The habits of cleanliness, right eating, sufficient rest and sleep, taking plenty of fresh air at work and play, contribute strength and growth and keep the body in good repair. How important, for instance, it is to keep the body clean because dirt clogs up the pores of the skin and hinders the normal action. It is therefore necessary to inculcate in children a love of cleanliness through its habitual practice, and to train them to understand its significance in the life of the individual and the community.

A child should not be sent to school with dirty face, hands, or body. It is the responsibility of parents, not school teachers, for securing personal cleanliness in children. Medical inspection of school children has revealed instances of children having a bath once a month and of wearing underclothing unchanged for the same period. Uncleanliness of the body, besides hinder-

ing the proper functioning of the skin, also aggravates skin disease, and may complicate a slight scratch, cut, or blister, with inflammation and even blood poisoning. Dirty hands or nails may convey germs to the mouth or to food. Uncleanliness of the head is not only disagreeable, but it spoils the character of the hair, and often gives rise to sores from which the glands of the neck may become affected. Uncleanliness of the nose and blocking of the nasal passages may contribute to mouth breathing, nasal catarrh, or even adenoids. Uncleanliness or constipation of the bowels is the root of much evil. The well-cared-for body brings efficiency and inspires a smile of health on the face of the owner. The school girl complexion is based on something more enduring than cosmetics. The health building must be built strongly if it is to be safe against the fire hazard of sickness.

The better care of babies, the gradual conquest of many of the acute infectious diseases, and the diminishing death-rate from tuberculosis have made it possible for many to turn forty and reach fifty and beyond, and it is especially this period of life that demands the proper care of the heart. In this latter half of life the rule of the three E's still holds good—temperance in eating and drinking, greater moderation in exercise with advancing years, emotions as cheery as possible.

Good Health Habits

Good janitor service also aids in the upkeep of the building and adds to its value and length of life. In the case of the body, good health habits are the janitors which keep the human body up to par. Just as there is no royal road to learning, so there is no magic key which will open the temple of health. The best we can do is to rely upon good habits in order that we may acquire and maintain good health.

The habits of cleanliness and tidiness instilled into us while young by our parents and teachers serve us in good stead throughout life. A love of fresh air, sunlight, exercise, adequate rest, and good food are essential for the human building to stand up to stresses and strains of life.

Even hobbies play an important part in maintaining mental and bodily health. The practice of some congenial hobby tends to divert the mind from the pressing perplexities of life and assists the human building to adapt itself to the material changes taking place. Gardening, for instance, is an excellent hobby, for has not Kipling written:—

Our England is a garden, and such gardens are not made
By singing: "Oh, how beautiful," and sitting in the shade,
While better men than we go out and start their working lives
At grubbing weeds from gravel paths with broken dinner knives.
There's not a pair of legs so thin, there's not a head so thick,
There's not a hand so weak and white, nor yet a heart so sick,
But it can find some needful job that's crying to be done,
For the Glory of the Garden, glorifieth everyone.

Dr. Quiet, Dr. Diet, and Dr. Merryman have been known to generations of students. There is the whole gospel of the prevention of nervous troubles.

Adequate Exercise

Continuous proper use of the human building is also necessary to health. If you use a building but a few months in the year and then shut it down, it soon becomes covered with dust, and its running machinery is liable to get out of order. It may be a fine, expensive building, but if not used rightly it will soon lose its value. So with the human building, adequate exercise is necessary to keep it in a satisfactory condition. Physical laziness is rarely a companion of health.

When an architect designs a building he plans it so that it will withstand many times the amount of strain required under ordinary conditions. Nature builds the human body on the same principle. In ordinary sedentary occupations men and women do not use their lungs, for instance, to one-tenth of their full capacity. Hence the importance of aiming at an all-round development of the human body and mind by healthy thinking, healthy eating, healthy exercise, and healthy work.

Cool Storage Notes

Inspection of Apples and Pears

STOCKS of pears and apples in cool storage will require a careful and regular inspection during the remainder of the season in order that the fruit may be marketed at the correct time to avoid losses. All lines of large counts, or fruit which shows a tendency to deteriorate by developing any of the troubles peculiar to each variety, should be marketed first, as it is by an elimination of this class of fruit from cool storage stocks that the best results are obtained. By this means the stocks of long-storage fruit can be maintained in good condition, and repacking charges and losses are avoided.

Winter Cole pears should be examined carefully, as lines which are wrapped in plain wraps may develop rots, which will bring about heavy losses if such are held for a further period. Rots are more likely to develop in fruit which has been subjected to undue delay before storage.

Winter Nelis will also require attention if their maturity has been allowed to advance before or after being placed in storage. When an advanced state of the maturity of pears is detected they should be marketed immediately.

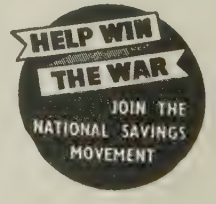
Granny Smith apples which have been allowed to advance to maturity before cool storage should be held at 32 degrees Fahrenheit in order to check any further advancement in their maturity during storage; otherwise, early deterioration will develop.

Delicious apples which have become too fully matured before cool storage soon become mealy, and are subject to the early development of soft rots. Care should be taken to release Delicious from cool storage while the fruit is still in sound condition for distribution, as, when held too long in storage, this class of fruit has a dertimental effect on the sale of this variety.

Rokewood apples should not be held for long storage, as this variety is subject to water-core. If placed in cool storage for a short period, they should be held at the higher range of temperatures—36 to 38 degrees Fahrenheit.

Thermometers used to indicate the temperatures of cool-storage chambers should be tested at regular intervals from a standard instrument. Care should be taken in selecting a position in the chamber for placing the thermometer in order to avoid damaging the instrument, as, under existing emergency conditions, some difficulty may be found in obtaining replacements of thermometers suitably calibrated for cool-storage purposes.

—A. POWELL, Cool Storage Officer, Wellington.



THE Good Neighbour

BY MARY

From Me To You

YOU will remember that last month I was chatting with you about change. Yet there is one very important aspect of change which I didn't mention—that is, to shut your gates after you. When you realise that a chapter of your life is finished, close the gate, and only open it on very rare occasions. You see, even if you leave open all the gates along the days of your past, one day you will find that you come to the cross-roads, where a decision must be made one way or another. Now, if you have left open all the gates along the way, you will be tempted to look in again on those old past scenes, some happy no doubt, and some sad. But these glimpses of yesterday will not help you to make your decision—instead, you will find yourself wavering, and wondering if you have the courage to go ahead with that new idea you had planned to do to-morrow.

Close your gates as you go—it is never too late to begin again. Robert Louis Stevenson wrote: "It is best to begin your folio; even if the doctor does not give you a year, even if he hesitates about a month, make one brave push, see what can be finished in a week. . . . Life goes down with a better grace, foaming in full tide over a precipice, than miserable struggling to an end in sandy deltas. That is the true meaning of the saying about those whom the gods love. At whatever age death may come, the man who does so, dies young."

It is as well occasionally to sit back awhile and review your past activities—ask yourself quite frankly if they are leading you anywhere, are you benefitting from what you do, are you making others happier by your efforts? It may mean cutting out some of your activities, but you will find that many things you do are only stepping stones to better things, just as some people you meet are only stepping stones to other folk who will prove far more interesting to you.

"Do not be defeated by the struggling and the strain,
Every time your heart is broken, dare to dream again."

So shut your gates as you go, and face the future with confidence. It is never too late to begin—do it now, to-day, Don't put it off till to-morrow — remember, to-morrow never comes.

Mary

Mary's "At Home"

A HEARTY handshake and a cheery smile to you, Mary, as I come into your "At Home." Your "From Me to You" remarks in the April issue are so very true. Here in New Zealand we enjoy so many blessings, compared with the Old Land. Those of us who have boys overseas know only too well how easy it is to see only the dark side, especially during the last few weeks, but we must all remember to "lift our eyes to the hills" and pray that this awful conflict will soon be over.

I would like to pass on these lines of poetry I found recently.

"Life is a story in volumes three,
The Past, the Present, the Yet-to-be,
The Past is over and hid away,
The Present we are living every day.
The next-to-come, the Yet-to-be,
Is locked away, God keepeth the key."

—**Tyrone, Otago.**

I DO think, if one wants a thing badly enough, one usually gets it. But that again has its drawbacks, for I remember a very wise old lady saying to me: "Always make up your mind that you know what you want, because when you get it, you often have to put up with it." I always consider that advice if I am thinking of plunging into anything, for many, many times I have found it to be true.—**Biddi-Jan, Redcliffs.**

IT was a tremendous thrill to be "in print!" These competitions are very good for us; it is such fine mental exercise to put our ideas into black and white. While we are busy about our hundred and one jobs in the house, we get plenty of time to think, but to put down our thoughts on paper in readable English is another matter!—**Peter Pan, Timaru.**

ONE animal who caused many a laugh was a neighbour's old cow called "Bluey." I remember once Mr. and Mrs. N. were both away on holiday, and two of the boys were at home. After returning from a dance one night, they set the breakfast table, as they had to get up early next morning. On retiring to bed, they thought they heard someone moving round in the kitchen, and called out "Who is there?" No answer—so one of the boys hopped out of bed to investigate, and there was old Bluey in the kitchen calmly munching a loaf of bread off the table. Were those boys wild? You see, it was the last bit of bread in the house! Later Bluey was sold to a farmer who used her to help break in young heifers. He would drive Bluey in alongside of a heifer, and reach under her to milk the heifer, the latter being only able to see Bluey, and not being a bit scared at that, she stood quietly to be milked.—**Another Mary, Morrinsville.**

IT seems to me that the two most important things in New Zealand are children and trees. Surely we New Zealand women should be more "tree-minded." We all know that it is the lack of trees that causes quite a number of avoidable disasters. Perhaps the apparent apathy of men towards this is that they are so busy clearing up the wreckage! It is a well-known fact that no matter how busy a woman is she can find time for one more thing. Perhaps if we banded together we could do something about this important piece of reconstruction. At present I have a little "forest" of 200 pine trees grown in a seedling box, just from ordinary pine cone seeds. A friend of mine grew all her shelter trees this way.—**Mary Marie, Halcombe.**

THANK you so much for your kind invitation to chat with you. I am delighted with your talks and your pages—they give one such an uplift in these days when our nation is engaged in a terrible struggle. I did enjoy your chat about life going wrong, and that nothing seems really worth while at times. It is just a mood that comes to test us I think, because I have felt so myself. But life is really wonderful, and one never knows what is round the corner. If we did not have our ups and downs I suppose we should not appreciate life as much as we do.

"Although everything seems wrong,
And your lot is most unkind,
Smile a smile, and sing a song—
Never mind.
Good things never last, they say,
Nor do bad ones, you will find,
So, though dark and drear the day—
Never mind!"

—**Peggy, Pleasant Point.**

FATHER cut down two of our poplars this week. He said they were dangerous, but he was killing something I loved very much. Mostly when he cuts down trees he tells me after the deed is done—this time I knew beforehand, but all my words didn't save my trees, and I told Dad what I thought of people who cut trees down! Oh, he's forgiven now, for the space gives us a view of lovely eucalyptus growing straight and tall, which we couldn't see before, and also a wider view of the everlasting hills, which I'm glad no one can knock down.—**John-in-the-Middle, Rangiora.**

ALTHOUGH winter is here, with its usual howling wind and unsettled weather, the garden is still ablaze with colour—marigolds in numerous shades, a second crop of hollyhock blooms, geraniums, a stray bloom here and there (many quite out of season), and beside the blaze of snapdragons, by lifting up the wealth of green leaves, one may find a mass of early violets. A garden—isn't it a lure to us all?—**M., Feilding.**

HAVING just bought a small farmlet of 13 acres I hope, in time, to work it up to a market garden, mostly flowers. At the present time I am busy clearing cocksfoot, which is nearly as tall as I am, and I can tell you it is hard work. I have only been in the place two months, but have managed to clear round the house, and am now waiting for a few marigolds and snapdragons to come up, just to brighten the home garden. I think a place looks so bare without a few flowers, don't you? Our house sits on the top of Monks Spur, and is 700 feet up, not very high from a Wellingtonian's point of view, but very high when one has always lived on the flat. We can see for miles out to sea, and on a clear day we see the Kaikouras. The plains are spread before us, like a map, and at night the city looks like an army of glow-worms. Today there is blowing one of our famous nor-westers, so that all I can do is sit inside, and hope the chimney holds.—**Biddi-Jan, Redcliffs.**

THESE are busy days, without a doubt, and how we look for news of the lads overseas. Where are they now? Time goes by so quickly when we plan things to do, and to send them. As I spend many hours in the milking shed daily, and have no help in the house, I have few moments to wonder "What shall I do to kill time?" Gardening and keeping the family wardrobe intact, as well as creature comforts, are a full-time job. The war does spoil things, doesn't it, but no doubt it has its purpose. You know the old song-hymn "God moves in a mysterious way."—**Mrs. Vee, Waikato.**

THANKS for your introduction to Donn Byrne. I could not get "Hangman's House," but have two of his books of short stories. He certainly is unusual, and both my husband and myself have enjoyed these books. I am still trying to get "White Banners" from the library.—**Plain Jane, Taupiri.**

DO you think many people are bored with their lives? If they are, where does the remedy lie? Not in possessions, I think—perhaps it is in the open eye. So many of us go about with the eyes that should be gathering sights and impressions to enrich our daily lives tightly shut. As for "Emily"—no, I am not of the New Moon fame! I named myself after what we have always called the "Little Aunts" picture—a painting of three great-great-great aunts in their 'teens—all white muslin, blue ribbons, pink rosebuds—and the one I liked best is Emily.—**Emily, Gordonton.**

DELAYS *are* DANGEROUS
EFFECT That POLICY
with the
GOVERNMENT LIFE
TO-DAY

Helpful Hannah Says . . .

After you have had fish for tea, your dishes are apt to smell "fishy." Add a little vinegar to the washing-up water, and the smell will disappear.

* * *

To prevent preserved eggs from cracking if you are boiling them, pierce the large end of the egg with a darning needle before putting it into the water.

* * *

Don't throw away your rubber sponge when it is too old to use in your bath. Keep it for cleaning the bath and basin. The cleaning powder is retained in the rubber, and it will not scratch the surface of your bath.

* * *

If you are carrying hot water, or indeed any hot liquid, on a tray, point the spout or pourer towards the middle of the tray. This minimises the risk of scalding if the hot water is upset accidentally.

* * *

If you pour hot milk into a jug standing in cold water, no skin will form on the milk.

The Needles Are Still Clicking

HERE is a strange truth: all the big stores are almost out of wool, and yet knitting needles throughout the country are clicking as busily as ever. Everywhere you go you see the khaki for the soldier, the navy for the sailor, or the blue-grey for the airman. And because of this activity on behalf of our boys overseas, we who are left behind have to go without our pet fancy for this winter. The scarcity of wool is not confined to the various weights—the range of colours is also very limited.

So what about unravelling that old cardigan you made the winter before last, and reknitting it? It's not hard, and when you have knitted it up in a new style, with a new stitch, no one will know it from new. When you are doing your unravelling, wind your wool into hanks, and tie each hank firmly at both ends. Now dip the hanks into soft soapsuds, rinse well, and hang on the line to dry. Result, plenty of fresh fluffy wool for your new jersey!

How do you knit? Do you use the quick method or the slow one? Not everyone knows the quicker way of knitting, but here it is for you, and you'll be surprised at the speed you acquire once you have mastered this way. Instead of putting the wool around the needle removing the stitch, put the needle round the wool; that is, use the needle as if it were a crochet hook. To do this, the wool must also be held as in crochet, which is over the first finger of the left hand. Not very difficult to learn, was it?

Perhaps you have a woollen garment which has became shiny in places? Rub the shiny parts, very gently, with a piece of fine sandpaper, rubbing against the grain of the material. This brings up the nap, and the shininess will disappear.

How about adding a hood to your jumper when you are reknitting it this winter? Maureen O'Sullivan, the Metro-Goldwyn-Mayer actress, has an edging of white angora which lends a decorative note to the hood on her sweater that may either fall loosely down the back, or be pulled up to cover the head when it is cold.

I know nearly every one of you will be knitting for the boys overseas—is it socks you are making? If you have any left-over wool, knit several small squares—about two inches square—and pin these to the socks, with a note to the wearer advising him to sew it over the holes as they appear. Ever so much easier for his bachelor fingers!

And if you do happen to be buying wool, test the quality by rubbing it between the finger and thumb: the softest is the best. Another good test is to hold the wool tightly between the thumb and finger of each hand (about two inches apart) and strum across it with the third finger. If the quality is there, it will not snap under the strain, and will make quite a tuneful sound. Remember, too, when buying needles, don't buy them too finely tapered at the end, because you are liable to make the size of the stitches uneven, and so spoil the appearance of your knitting.

Have you ever thought of making the jumpers for your kiddies with round or square necks? Made this way, they can be worn either back or front, and can be worn twice as long. You can do this, too, with underclothes for yourself, or nightwear, and it saves ever so much patching.

And finally, here is a pattern for knitted smocking—you will find it very useful for cuffs and waistbands.

Cast on an even number of stitches and knit into the back of the stitch for one row.

Three rows of ribbing—that is, 1 plain, 1 purl.

Now comes the first pattern row. Put right-hand needle BETWEEN (not into) the third and fourth stitches, bring wool round as for knitting, but place on left-hand needle, knit 2 together, purl 1, knit 1, purl 1. Repeat these directions to end of row.

Next comes three rows of ribbing—that is, 1 plain, 1 purl.

Here is the second pattern row. Knit 1 plain, 1 purl, then put right-hand needle between the sixth and seventh stitches, bring wool round as for knitting, but place on left-hand needle, knit 2 together, purl 1, knit 1, purl 1. Repeat to end of row.

Three more rows of ribbing, and then start again with the first pattern row.

I am sure you will find this pattern easy to follow, and that you will make good use of it on these cold evenings when you gather round the fire, listening to the wireless, and the click of the needles.

Let's Be Neighbourly

PLEASE, can any one of my good neighbours assist with these requests?

Mrs. W. R. Davidson, 54 Jubilee Road, Khandallah, Wellington, would like to know if any reader has had experience with mattresses filled with wool from the sheep's back. If so, are they satisfactory, how is the wool obtained and prepared, is the mattress left loose or buttoned, and how is it revived when flattened with use?

Mrs. Roseveare, Endsleigh Farm, Clinton, Otago, has been told that kawa kawa leaves are a cure for rheumatism, and would like to know of anyone who would send her some leaves. Also, she would like some advice about broom tea.

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STATE FIRE

INSURANCE OFFICE

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Our Competition

What Do You Consider The Best Years Of Your Life?

I THOUGHT I had set you a puzzle this time, for I didn't think very many of you would agree as to the best years of your life. But I was wrong, and after reading the many entries, I found that you were very nearly all of the same opinion: the golden age of a woman is when she has reached the stage of motherhood and grows to maturity, happy in her home tasks, thankful for the love of her husband and children, glad that she has known troubles and sadness, but rejoicing in the joys she has about her.

The first prize has been won by "D.M.R.," Waikato; second goes to "Silver Fern," Canterbury; and highly commended, "Alter Ego," Clinton, and "Manaia," Wanganui.

Here they are, for you to read and enjoy as I have read and enjoyed them:—

First Prize

HAPPINESS! What vistas of joyous moments and carefree days that word conjures up, and yet those years of my youth, when life to me was a thrilling adventure, when my youthful optimism and enthusiasm made life a series of joys and excitements, held an occasional heartache, and sometimes disillusionment.. But all these little pains and sadnesses, if we face them with courage and faith, prove to be our greatest assets and teachers in the balancing of our personalities, and the moulding of our characters. As has been written "We cannot know real joy unless we have tasted of sorrow." Neither can we know real happiness until we are accomplishing our destiny. Accomplishment, in my opinion, is the key to real happiness.

It is every woman's birthright and desire to love, and in turn to be loved greatly, and no woman has experienced to the full her deep capacity for happiness until that most wonderful of all days when she holds in her arms her first child. Oh, the wonder of that moment, and those succeeding days, months, and years, when the clasp of soft baby hands, the loving caresses, and the music of sweet baby laughter find an echo in a mother's heart! With each dawn of day, each and every one of us is showered with gifts and blessings. But of all earthly gifts and blessings the most beautiful is Motherhood. Therefore, the days which bring to me the knowledge that I have been entrusted with the care and development of a human mind, soul and body to cherish and nourish with tender love and prayer and work, these are the happiest days of my life—my Golden Age.—**D.M.R., Waikato.**

Second Prize

IT'S FINE to be fifty! I know, for today I stand at this milestone on Life's journey, and look down the vista of the future, and into the horizon of the future, and the eyes that have been washed with tears of both joy and sorrow have a clarity of vision not given to them in the days of youth, nor yet dimmed by the kindly veils of age.

I find this age strangely precious, for not yet must I lose touch with the youth whose "golden age" is so sadly dimmed in these strenuous days; also, because only those who have themselves felt weary and perhaps at times faint-hearted, can enter into the fellowship of the aged whose steps falter, and need the way made smoother for them. And so, this half-way stage gives me a measure of sympathy and understanding of the special difficulties of both youth and old age.

Yet, despite the clear view I have of the past, I hesitate to be dogmatic enough to claim my age as "the best years of my life." Robert Browning has said, "Grow old along with me, the best is yet to be." In homelier manner, the maiden lady of eighty attests to this hopeful looking forward, for when asked when a woman gives up hope of marriage, she replies, "Ye'll need to ask someone older than me!"

Widowed, with my only son in the R.N.Z.A.F., and with many of my former possessions lost, I **do** affirm that in service to others, in the leisure and ability to ponder over the problems of my fellow-travellers and arrive at serene conclusions, these less exciting, less glamorous days of middle-age are in a very real sense "the best years" to date. So, I reiterate, "I'm glad to be fifty today!"—**Silver Fern, Christchurch.**

One Year Old.

You have reached, little son,
The bright beginning of the years.
Be gentle with him, sun and stars,
Be gracious to him, years—
Let no unkindly thing
Make furtive those brave eyes,
They are his heritage,
His own blue skies.
Let no grief
Nor bitterness nor gall
Tatter the gentle fabric
Of his soul.
These are my dreams he bears,
Be tender to him years.

—Joyce Jeffrey.

Highly Commended

ONE of the greatest Chinese philosophers gives the following dictum: "Between 30 and 40 one is distracted by the five lusts; between 70 and 80 one is prey to a hundred diseases. But from 50 to 60 one is free from all ills, calm and still the heart enjoys rest. I have put behind me love and greed, I have done with profit and fame, I am still short of illness and decay, and far from decrepit age . . . I exhort you not to complain of three-score."

I read this, and I said to myself, "Well, here you are. You're not young, and you're far from decrepit. By the time you reach 50, you will be at the Golden Age. Something to look forward to!" But, no, I couldn't talk myself out of it like that. I know it, I feel it, that youth is the best age—from 18 to 25 is the Golden Age. Byron, in the fullness of his glorious youth, cried passionately:

"Talk not to me of a name great in story,
The days of our youth are the days of our glory."

And I would say the same—talk not to me of the pleasures of age, for what are they compared with youth's privileges? Though those pleasures be attended by all the pangs of youth, all the doubts and fears, I would still choose rosy youth, when we see life through those rose-coloured spectacles that at 40 become a bit murky, and at 50 are too dim to see through. And though I am far past my youth, with but a "scent of lavender and a fragrance" left of it, I shall always look back on it as my Golden Age, and though I intend to make the most of my present age, I still say with Shakespeare: "Age I do abhor thee, Youth I do adore thee!"—**Alter Ego, Clinton.**

THE best time, the golden age of life, **is** now, whatever one's years may be. Every age with its progress brings pain, as surely as it brings its

results, its joys, and compensations. Looking back, or forward, to any period, and to label it "golden" is self-delusion, wilfully neglecting to see the details that would darken the rose-tinted picture visible only through the spectacles we have chosen to wear to view those particular distant fields. **Now** is the only space of time actually in our grasp, to enjoy according to the way we choose to handle it, and to train ourselves to regard it as such. The important thing about the golden age is to train yourself to enjoy thoroughly now, while you are living it, to live and understand its beauty so fully that you will be able to relive it in retrospect, and enjoy its gold as heartily, perhaps more richly and placidly in that "now" you will create anew whenever you like. The past that is forgotten or slurred over, the future that may never be—how can they compare with the **now** we hold in our hands today?—**Manaia, Wanganui.**

TO my mind, the years that lie between twenty and forty are the golden ones. The book of life is opened for us at the first chapter. We have done with its prologue, childhood, and the epilogue is yet to be written in old age. We have dreamed our dreams, and now the reality has replaced the dreams. Our destiny is ours to shape. Time will not wait, soon it will be too late. These are the best years. It is our own fault if we do not take advantage of them, if we look back from old age, and regret our lost opportunities. Even if our youthful ardour has outrun the sum of our capabilities, still we can rejoice in the battle against odds, and the mental and physical strength, product of maturity, with which we meet our troubles. And because no period of life is free from sorrow, we shall have sorrows, but we shall also be able to bear them better than at any other time of our lives. No one thinks to call these years golden, but they are all pure gold.—**Khorasbad, Marlborough.**

YOUR question is rather a difficult one to answer, but I do agree with you that youth should not be called the golden age. Should it not be called the silver age, as it is full of fun and sparkle, without the rich happiness of older years? I take my own life as an example. In my youth I was healthy and happy, with everything that a girl could wish for, but I realise now, after going through illness and worry, that I get a deeper happiness out of life now than I used to. Youth takes all the happiness it can get, and looks for more, while age appreciates every little happiness, and can live in that happiness so much longer. My husband and I agree that as far as we have got this is the golden time of our life, when we are so happy with our children, and are trying to help them to appreciate and make the most of their lives.—**Mrs. J. I. Joines, Timaru.**

THE golden age of a woman is motherhood, when her family is young and growing. A woman who has not gone down into the shadow of the valley of Death to bring forth a bonnie wee baby has missed the golden age of womanhood. No matter how successful she may be in other walks of life, all is thrown overboard, for the time being, at any rate, when the prospect of marriage and motherhood appears on the horizon, and rightly so, for she is only following the natural instinct that Nature made her for. When women cease to love a little child, they are to be pitied, for they are not natural. Just watch any young mother showing her first-born to some admiring friends—see the proud, radiant look on her face as she holds forth her bundle of love. What mother will part with any of her family, despite trials and tribulations? And the pride and thrill of her baby's first day at school, the little face flushed with the great excitement of the unknown as he or she goes forth all alone for the first time. Mother's baby never grows up. See the mothers at the railway stations or the quayside, waving good-bye to their soldier sons. The tears are coursing down their cheeks as they wave farewell, while pictures of his childhood race through her mind, as she sees him, in his swaddling clothes, his first day at school, at his games, in his young manhood. For mother's babies never grow up. So, unless we have tasted the joys of married life, how can we express an opinion on what is our golden age?—**Nellie K., Hawera.**

Are You A Perfect Wife?

AN American Women's Club recently drew up this set of rules for the guidance of the "Perfect Wife." Laugh at them if you like, use them if you wish, but what about drawing up some rules of your own if you disagree with them?

1. Dress prettily for breakfast.
2. Get your husband to take you out two evenings a week, but let him stay at home the rest of the time.
3. Pay the houshold bills before buying a new frock.
4. Never make your husband dry the dishes.
5. Listen to your husband if he likes the sound of his own voice.
6. Ask his advice on everything.
7. Be clinging, but not too clinging.
8. Make him think you are a poor, weak creature, and that he is 9ft. in height, with the strength of a lion, and the courage of a Napoleon.

"WHAT DO YOU THINK A PERFECT WIFE SHOULD AND SHOULD NOT DO?"

Two prizes will be awarded: First 10/-, and second 5/-. Let me have your ideas before July 15th, please.

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COMFORT—*WITH CAPITALS*

I THINK the word "COMFORT" should always be spelt in capitals, for it is such an important part of our home life. To be comfortable is to be happy, and we all know the true meaning of comfort, and the sense of well-being which pervades us, when we don our slippers and dressing-gown, and have forty winks in front of the fire on a cold night in our own particular chair. Ten chances to one the chair is the oldest in the room, perhaps there is a broken spring in it, but it is your chair, you know just how to sit to avoid the bumps, and it is comfortable. That is all that matters!

A home need not be furnished expensively or extravagantly to be comfortable—on the contrary, many homes which are furnished on a lavish scale are too new-looking to invite you to rest awhile therein in your oldest clothes. The main consideration for winter comfort is to have plenty of warmth, and of course you all know there is nothing to beat the glowing log fire for warmth! Be glad you don't live in a city flat, where your only source of warmth are those cheerless-looking articles which go under the name of "central heating." The air in the room may be warm, but there is no glow, and consequently no central meeting place, as it were.

Which brings me to another important point. When you started your winter fires again, did you have an overhaul of the placing of your furniture? No doubt through the long days of summer you liked to have your couch by the window where you could sit in the sun in the afternoon. But now you must rearrange your room so that your couch is warm on a winter's night. Be careful too how your chairs are grouped. It is so easy to have one comfy chair out on its own in a corner, and one of the family circle is going to be a little bit out of the way of the conversation if he strikes that particular chair.

Now cushions—always make sure you have plenty of them, plump well-filled ones, and softer, smaller ones. Make them gay—bright materials are not expensive, and warm-coloured cushions are a big help towards making a room look inviting. How about your curtains? Maybe in summer-time they were cool and fresh-looking, but now that winter is here perhaps they are cold and cheerless. Some of the new cottage weave curtain materials are made in the brightest of colours, and with cushions to match, what could be prettier?

Don't make the mistake of having too many knickknacks about—they are disturbing to the peace of mind of your family and your guests alike. Have a few ash-trays at handy spots, but keep your vases up on your mantelpiece where they will not be likely to be knocked by a sudden jolt from someone's elbow all unawares.

See that you have a low table somewhere handy in case anyone wants to write at night—keep it out of draughts, and near the fire, and make sure the light is good.

Comfort—it is only a little word, but it means such a lot to the happiness of our families. If they are all comfortable at home, there will be no discontent because they wanted to see that particular picture on in the township tonight, but couldn't go because of the petrol shortage. And after all, what more could one wish for on a cold wintry night than a book to read, a wireless to listen to, and a glowing log fire for company?

"... Only Skin Deep"

Chilblains Won't Itch!

I CAN just imagine the little worried wrinkle that has formed across your brow when you read that chilblains won't itch! It seems impossible, doesn't it? But the solution is really quite simple: chilblains won't itch if you havn't got any! There, I can see your face falling already, as you bend down and give your little toe a rub—funny how that chilblain itched again the moment you remembered it was there! But I am going to tell you how to get rid of these troublesome visitors, for really there is no need to put up with them this winter as you did last winter, and perhaps for countless winters before that.

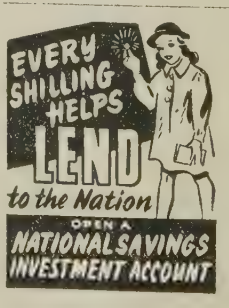
There are two main causes contributing to chilblains: firstly, there is poor circulation, and, secondly, deficiency in the diet. With a little perseverance, both of these can be overcome. The question of circulation is an important one: always indulge in as much out-of-door exercise as possible during the winter months. If you can, take up an outdoor sport—basketball if you are near a township, or perhaps golf. Don't let it worry you if you can't join a golf club—take your stick and golf balls out into the paddock and have some practice hits. It is not so much the game of golf that your chilblains appreciate as the exercise you gain through swinging the club, and chasing the elusive balls. Skipping is another very good form of exercise which promotes a healthy circulation.

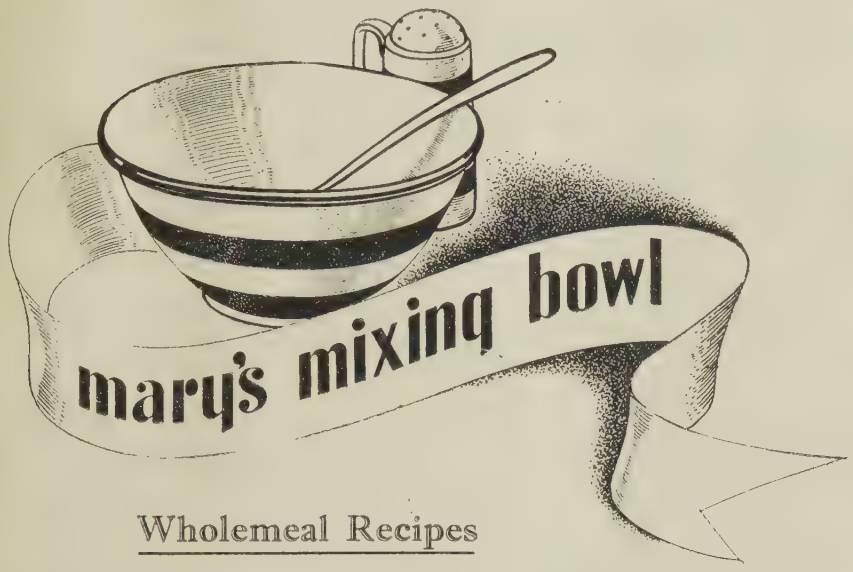
Now your diet. If you suffer from chilblains, you should overhaul your diet thoroughly. See you have plenty of fatty foods, cereals, and milky foods. Calcium tablets often supply the deficiency satisfactorily, and cod or halibut oil, both rich in vitamins, are good, too.

But perhaps you do all this, and still have the chilblains? Get busy with some hot water and a soft-bristled nail brush, and rub your toes or fingers both night and morning. Tincture of iodine, preferably colourless, is helpful when the chilblains are swollen, but remember to wash the affected part with warm water, and dry it carefully before you apply the iodine.

And here is a first-class cure I can recommend to you. Put the white of an egg into a basin, and add gradually one tablespoonful each of kerosene, eucalyptus, and turpentine. Stir it gently, and then apply it with a piece of soft rag. Within a few minutes the inflammation grows less, and after repeated applications for one or two days your chilblains will leave you.

Don't get so pleased with yourself, though, when you find yourself without that irritating itch for a few days. Get busy, and see that the itch doesn't have a chance to return. Here's how: make a solution of hot water and common salt in the proportion of half a pint of salt to a gallon of water. Soak your hands and feet in this solution every night for a few minutes, and I don't think you will be troubled again with chilblains. And, as in a lot of other common ailments, prevention is better than cure, so watch your exercise, watch your diet, and so keep the enemy at bay all through the cold of wintertime.





Wholemeal Recipes

Best Wholemeal Recipe

The prize of 2/6 for the best wholemeal recipe is awarded to "Lucky Girl," Takapau, for the following recipe:—

WHOLEMEAL LOAF.

3 large breakfast cups wholemeal, 1 large breakfast cup flour, ½ teaspoon salt, 4 teaspoons baking powder, 2 dessertspoons golden syrup, ½ cup hot water, ¾ cup milk or butter milk.

Mix dry ingredients. Dissolve golden syrup in hot water. Add milk. Mix into a light dough. Bake in greased tin covered with a lid for 1 hour. Electric oven 400 deg. A quickly made nutritious loaf.

WHEATMEAL MILK ROLLS.

1 cup flour, 1 cup wheatmeal, pinch salt, 2 tab. sugar, 3 tsp. baking powder.

Rub in 2 oz. butter, and mix with sufficient milk to make a stiff scone mixture. Form into roll about 3 inches across and cut off slices. Cook in over 400 degrees for 20 minutes.—**Frances White, Gore.**

WHOLEMEAL BREAD.

1 lb. wholemeal flour, 1 tablespoon sugar, if liked, 1 teaspoonful bicarbonate soda, ½ pt. to 1 pt. sour milk, 1 teaspoonful cream of tartar, salt.

Mix dry ingredients, add sour milk until the mixture is stiff. Form into a round loaf and put on a greased tray or tin and bake for 45 minutes in a moderate oven.—**Plain Jane, Taupiri.**

WHOLEMEAL BUNS.

1 lb. wholemeal, ¼ lb. sultanas, ½ teaspoon salt, 2 ozs. butter, ¼ oz. yeast, a little nutmeg and lemon peel may be added if liked.

Mix the yeast with warm water. A little honey will make the yeast active. Rub salt and butter into meal. Add fruit. Add a little warm milk to the yeast and mix into the meal. After kneading set the mixture to rise for 1 hour. Knead and place buns in baking tins, well greased, and allow to rise once more. When baked, brush with milk and sugar dissolved to make a glaze, and sprinkle with cinnamon or coconut.—**Wholesome, Tauranga.**

WHOLEMEAL PUDDING.

1 cup of grated carrot, 1 slice of wholemeal bread soaked in milk and then squeezed dry, 2 oz. butter (melted), 2 tablespoons of raw sugar, 1 cup wholemeal, 1 cup of mixed dates, currants, sultanas. 1 tablespoon treacle or honey, 1 small grated apple, skin and all.

Mix all together; if not consistency of plum pudding mixture add another apple. Steam 2 hours, or press into a baking dish and bake very slowly an hour and a half.—**Wholesome, Tauranga.**

WHEATMEAL CHEESE SCONES.

2 cups wheatmeal, ½ cup grated cheese, 1 teaspoon soda, pinch salt, 1 cup flour, 2 teaspoons cream of tartar, 3 tablespoons butter, milk to mix.

Sift flour, cream of tartar, and soda, add wheatmeal and cheese. Mix with little milk and the melted butter to dough just slightly more moist than an all-flour dough. Roll out, cut into shape, and bake in hot oven a few minutes longer than ordinary scones.—**Mary Ann.**

WHOLEMEAL NUT LOAF.

2 cups wholemeal, 1 egg (beaten), and add last, 1 cup brown sugar.

Put 1 cup dates and 1 teaspoon baking soda, 1 cup boiling water, 1 dessertspoon butter in a basin. Add dry ingredients and beaten egg last. Bake in loaf tin—moderate oven 1 hour.—**Mrs. Victor Bailey, Auckland.**

HEALTH BISCUITS.

2 cups wholemeal, 2 cups bran, 2 teaspoons baking powder (level), 4 oz. butter, ½ cup brown sugar, 1 egg, milk to mix.

Beat butter and sugar to a cream, add egg and milk to make a stiff dough. Roll out thin. Bake till brown in hot oven. Egg may be omitted.—**Mrs. M.G., Kawhia.**

WHOLEMEAL BISCUITS.

4 cups wholemeal, pinch of salt, 2 teaspoonfuls baking powder, ¼ lb. sugar, 6 oz. butter.

Mix to a stiff paste with milk and water. Roll out very thin and bake in good oven.—**M.D., Waimate.**

An Economic Meal

THIS month we are not going to have the usual recipe competition. Instead, we are going on a search to find the careful housewife who makes one penny do the work of two, because there are so many of us these days who have to do that. But it's going to be fun!

I want you to plan and send to me a three-course meal, for three persons, not to cost more than 2/- altogether. Who said it couldn't be done? Here's a specimen for you:—

Materials:	Calf's liver	6d.
	Onions	3d.
	Potatoes	3d.
	½lb. pumpkin	2d.
	Milk, 1 pint	3d.
	Apples, 2lb.	4d.
	Sugar, ¼lb.	1d.
	Total	1/10d.

Wash and slice liver, peel and slice onions, season generously with salt and peper, and put in casserole in alternate layers. Add a cup of water, and bake for an hour in a moderately hot oven. While this is cooking, boil the pumpkin in a small quantity of salted water until tender. Work through a colander, put into saucepan with the milk and liquor from pumpkin, and enough water to make up to 1½ pints. Season, and reheat soup. The apples, stewed, with a few cloves, make a good ending to this tasty meal.

Two prizes for you: First 10/-, and second 5/-.

Send your menu to the "Mixing Bowl" by July 15th, 1941.

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WHOLEMEAL GINGERBREAD.

¼ lb. butter, ¾ cup of golden syrup, 1 egg, 2 large cups of wholemeal, a few sultanas and a little preserved ginger cut in small pieces, ¾ cup soft brown sugar, 1 cup of milk (butter milk is best if you have it), 1 dessertspoon ground ginger, 1 teaspoon of baking soda.

Cream butter and sugar, then add egg, milk and golden syrup, and soda dissolved in a tablespoon of hot water, then add the wholemeal. Bake in a shallow meat tin for about 1 hr.—**Miss A.B., Raglan.**

BACON AND YORKSHIRE PUDDING.

Put a rasher of bacon for each person in a baking tin with a dessertspoonful of dripping. When really hot, pour over a Yorkshire pudding, and bake in a good oven half an hour. To make the pudding, beat well together 1 egg, 1 good cup of milk, and ½ cup of flour, with a pinch of salt.—**Mrs. A. N. Brown, Middlemarch.**

ICED APPLE CAKE.

Stew some apples with a little water, sweeten. Make a dough with ½lb. flour, 2oz. sugar, less than ¼lb. butter, 1 teaspoon baking powder, 1 egg. Roll out thinly; divide into pieces. Spread apple on one, and place the other half on top. Even up the edges, and bake 20 minutes. Make a plain icing, and spread on top when cold. Useful cut for lunches, or dainty for afternoon tea.

PUMPKIN AND PARSLEY SOUP.

Into the pot put a piece of pumpkin for each person, add 1 cup washed barley, 1 sliced onion, 1 large cup of chopped parsley, and stock. Season. Let cook slowly so that it does not evaporate too much. Ten minutes before serving, put into the bubbling soup cheese dumplings (scone mixture with chopped cheese).—**Mrs. Vee, Waikato.**

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BANANA SOUP.

3 bananas (on the green side), 1 onion, 1 turnip, 2 tomatoes, ½oz. flour, ½oz. butter, good pinch of celery salt, 1 dessertspoonful of Worcester sauce, 1 teaspoon curry powder, ¾ pint of water.

Slice onion, turnips, and tomatoes, and fry them in the butter for 10 minutes. Remove from pan, and put in the flour, stirring till brown, add curry powder, sauce, and seasonings. Add water gradually, and stir till it boils. Put in bananas, sliced thickly, and the vegetables that were fried. Simmer till the vegetables are tender, rub through a sieve, reheat, and serve. —**Mrs. H.S.G., Timaru.**

CHEESE FRITTERS.

Scald 8oz. of stale bread (pieces) with boiling water, and cover till soft. Drain in strainer. Add ¼lb. grated cheese, salt, pepper, and 1 tablespoon cornflour. Mix with 1 egg. Fry in hot fat till golden-brown. These are delicious, and make a favourite tea-dish. —**John-in-the-Middle, Rangiora.**

HONEY SPONGE CAKE.

Take 3 eggs, ¾ cup strained honey, ⅜ cup of sifted flour, ½ teaspoon baking powder, pinch of salt. Cream egg-yolks and honey together thoroughly. Beat egg-white stiffly, add the salt, sift in flour and baking powder, and bake at once in two sandwich tins for half an hour in a moderate oven. Join together with mock cream.

STEAMED MINCE LOAF.

1lb. beef pieces, 1 breakfast cup stale breadcrumbs, a little stock, 2 minced onions, 1 egg, salt, and pepper.

Put the meat through the mincer. Mix the meat and onion with the breadcrumbs, season, and stir in the beaten egg and enough stock to moisten. Press into a greased pudding basin, cover securely with greased paper and a cloth, and steam for two hours. Turn out on a hot dish, and serve with mashed potatoes, greens, and a little thickened gravy.

CASSEROLED RABBIT.

Butter a casserole, sprinkle with breadcrumbs, and chopped parsley, and line with lean bacon rashers. Wash and joint rabbit, place in casserole, and sprinkle with breadcrumbs, chopped parsley, thyme, and a few pieces of chopped bacon. Cover with about 1 pint of milk, top with a good layer of breadcrumbs, and cook in a slow oven about 2 hours, removing lid during the last 15 minutes to brown. Water may be used instead of milk.

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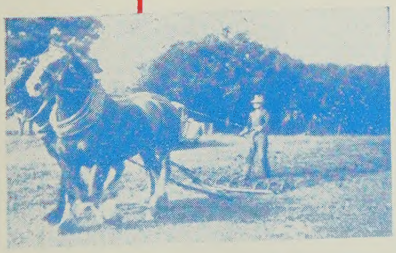

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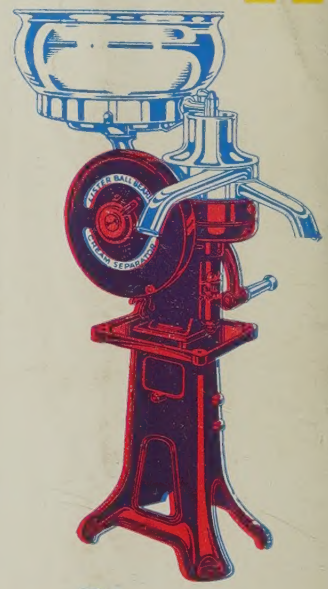

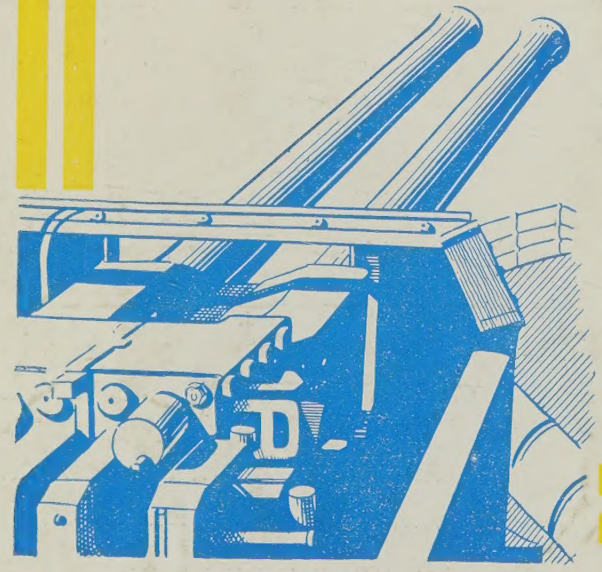

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